

Environment and Health International

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Magazine of the International Federation of Environmental Health

COVID-19, re-emerging in 2022



The Federation works to disseminate knowledge concerning environmental health and promote co-operation between countries where environmental health issues are trans-boundary. It promotes the interchange of people working in this sector and the exchange of Member's publications of a scientific and technical nature. Amongst other things, the Federation seeks to provide means of exchanging information and experience on environmental health, to hold Congresses and meetings to discuss subjects relevant to environmental science health and administration, to represent the interests of environmental health to state agencies, national governments and international organizations and to promote field studies of environmental health control.

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Upcoming events

(if you want your event publicised please send the Editor a graphic and link)



IFEH attended

June 28 – 1 July 2022

In the diary	... ✓
Abstract submitted	... ✓
Abstract accepted	... ✓
Flights booked	... To do
Presentation delivered	... To do



23-25th August 2022

In the diary	... To do
Abstract submitted	... To do
Abstract accepted	... To do
Flights booked	... To do
Presentation delivered	... To do

IFEH President's Address

Dr Susana Paixão



I am pleased to introduce you to another issue of our Environment & Health International magazine, dedicated to the COVID-19 pandemic that we are continuing to experience. I guess COVID-19 represents the single most important event in our personal and professional lives. We are living in unprecedented times that are likely to shape both public and environmental health practice for generations to come. We need to pull together professionally to share best practice and to champion environmental health as front-line professional protecting the public, offering evidence based advice and working as an integrated part of the pandemic solution.

I take the opportunity to highlight the theme chosen for the celebration of World Environmental Health Day 2021, which, is celebrated every year on September 26 and had as its motto: "Prioritizing Environmental Health for healthier communities in global recovery" and refer you to the IFEH Facebook site and website to see all the wonderful events that took place this year.

WHO released the "Manifesto for a healthy recovery from COVID-19", in order to draw the attention of governments to the importance of seizing the moment and thinking about the entire recovery plan of their countries, focused on environmental health issues with the communities where environmental health professionals play a leading role. I would like to remind you that the Federation, as in previous years, has a special section on the website, dedicated to the different actions carried out in the world, within the scope of the World Environmental Health Day.

A highlight for 2021 was the 4th IFEH World Academic Conference on Environmental Health, which took place virtually, in Tartu, Estonia, from 4 - 6 May and videos are available on the Federation's website. I urge everyone to 'review' the excellent presentations as we all have much to learn!

Colleagues will have seen that IFEH was granted observer status at the recent COP26. It was my honour to attend alongside the Honorary Secretary and to represent fellow EH practitioners from around the world at this prestigious event. Martin and myself were extremely busy on your behalf, making the voice of IFEH be heard wherever we went.

I would also like to highlight my virtual presence at the Iberoamerican Congress on Environmental Health organized by different countries in Latin America, in collaboration with our members from Portugal (Portuguese Society for Environmental Health) and Spain (Spanish Society for Environmental Health). We hope to bring the countries of Latin America into our Federation.

I was invited to participation, as President IFEH, in the Environmental Health Association of Namibia Founding Congress in August and in the 5th International Conference on Environmental Health which took place from 14-16 December at the University of Kashan University in Iran. I was able to listen to a wide range of excellent presentations from national experts further illustrating the benefits of IFEH.

I send my personal greetings to each of you and your family in the hope that we will be able to reconnect, face to face in Kuala Lumpur, Malaysia from 23-25th August 2022 at the 16th IFEH World Congress titled 'Environmental Health at the Centre of Sustainable Development'. Watchout for abstract calls at <https://www.facebook.com/WCEH2022>

Susana Paixão

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IFEH Honorary Secretary



A personal COVID-19 check list

By Martin Fitzpatrick, IFEH.

The request from the IFEH Editor seemed deceptively simple – “a short piece with a COVID-19 focus and what are your hopes for the future of Environmental Health – by tomorrow, please.”

Having mulled on it, I quickly realised that my thoughts were an amalgam of hopes, fears and lessons learned. So I decided that the best way to approach this was to share my Top 5 of each and hope that some will resonate, give food for thought or spark a differing opinion.

So, in the context of the Corvid 19 pandemic

My Hopes for the future of Environmental Health

1. Public health and environmental health remains in the public consciousness.
2. The sectors of the workforce that kept our economies and health services operating are more highly valued in society in tangible ways.
3. Vaccine equity is recognised as a basic human right.
4. Credible facts, science and data continue to have currency in the face of disinformation, and misinformed opinion
5. The pandemic teaches us that common effort on global health is not just wishful thinking

My Fears for the future of Environmental Health

1. This pandemic continues to wreak havoc in many countries - will “recovery” be for the many or the few?
2. The urgency of addressing climate action will be delayed
3. “Getting back to normal” without questioning if the old normal worked that well.
4. Emerging incidence of illnesses or diseases not yet detected
5. The consequences if we don’t address burn out or stress for ourselves and our colleagues.

The lessons learned

1. Simple messages – wash your hands, wear a face mask , maintain social distance - have always been environmental health’s most powerful weapons of mass instruction.
2. Community matters - regardless of your wealth or social status
3. We are all adaptable – and none more so than environmental health professionals .
4. Technology - love it or hate it, is intrinsic to our lives but is not our defining quality
5. Living in the moment - so much of what passed as important previously really wasn’t.

IFEH Honorary Editor

Dr Andrew Mathieson



Chair International Environmental
Health Faculty Forum (IEHFF)

This is my second magazine. 2021 started with great intentions of 3 magazines and a student edition with the possibility of a bilingual version highlighting the environmental health activities in South America. Alas it was not to be.

However, I am looking forward to 2022 with renewed energy and enthusiasm. My plan is to publish a magazine as soon as I get around 20 pages of material. So, the challenge is for you to generate and submit material throughout the year. Email me if you need help or wish to collaborate.

As Honorary Editor, I call on academics, students and practitioners alike to keep me busy by submitting academic articles, case studies of best practice, projects and examples of excellent student work. I especially encourage practitioners to link up with academics to add the additional rigor and referencing which helps build the evidence base of environmental health practice. Please include data and royalty free photos of best practice.

As practitioners, please take time to renew your knowledge of [One Health](#) and how you can work within this construct on a day to day basis to improve health. In addition, review the [sustainable development goals](#) (SDGs) and put pen to paper on how you are working to meet the challenges set by the SDGs. More and more academics and indeed governments are linking research, policy with SDGs. Improve your networks, consider stepping out of the traditional environmental health networks and working groups to find new professionals work with them to build environmental health capacity. Consider joining the [HEAL network](#). If you know of other networks let me know and I will publish links at the end of each magazine.

- If you are involved in COVID-19 let me know the links you use.
- If you are involved in research, what are the best sources you access regularly.
- If you are in disaster relief/management let me know the links/sources you use.
- If you are a professional association or University, send me a link to what you are doing or a half page advert.
- If I have published an advert and you want to make changes please send me updates or I will keep the advert running in future editions,

I am also chair of the International Environmental Health Faculty Forum (IEHFF). As chair of IEHFF I have been voted onto the Board member of IFEH. Some say I have too many jobs and too many titles. If you attended the last two AGMs of IFEH you will see this has been discussed at

length. If you want volunteer and get involved in either the magazine or IEHFF please seek support from your region and the regional chair will pass your details onto me. I welcome the opportunity to work with colleagues around the world both as honorary editor and chair IEHFF.

Indeed, the proposal I previously submitted to IFEH Board for endorsement is that each region selects an academic to sit on IEHFF Board and for that board once duly constituted to elect at each World Congress a new Chair and executive (mirroring IFEH Board). The same model is requested for the IFEH Magazine in that each Region of IFEH is requested to select/elect a regional editor who will sit on the editorial board of IFEH magazine and help generate material and coordinate regional activities that can be included in the next edition of the magazine.

So, the opportunity exists, if you want to get involved with either the IFEH magazine editorial board or IEHFF academic board then please make representation to your Region and it is for the Region to run elections and notify me of the results.



Social Protection visit with [International Medical Corps](#) (IMC) volunteer supporting Syrian Refugees and vulnerable Lebanese as part of EU funded project.

I am looking forward to borders opening and to re-engage in development/ monitoring and evaluation for European Union. In 2018-20 I was fortunate enough to be selected to work for EU to conduct an [External Monitoring and Evaluation for the European Union Regional Trust Fund in response to the Syrian Crisis, the 'Madad Fund'](#) (published May2020). This was probably the most challenging project I have been involved in but the work done in Lebanon by the government, EU and NGOs (WHO/ UNICEF/ UNHCR/ YMCA/ IMC etc) has made a significant impact on both the Syrian Refugees and vulnerable local population.

As a senior lecturer at ANU, Canberra, Australia, I am keen to hear from and support colleagues, just drop me an email.

Email: Andrew.mathieson@anu.edu.au

Apologies in advance for any style, spelling or grammar errors and to anyone that sent me an advert/article that was not included ... please resend as I know I lost a few.

Front Cover Photos:

Main Photo by Chennai, tamil nadu, india on Unsplash,
Small photos from UN COP26, NEHA and IFEH Facebook site.

COP26 – Glasgow October 2021



For nearly three decades the UN has been bringing together almost every country on earth for global climate summits – called COPs – which stands for ‘Conference of the Parties’. In that time climate change has gone from being a fringe issue to a global priority.

This year was the 26th annual summit – giving it the name COP26. With the UK as President, COP26 took place in Glasgow.

For the first time the International Federation of environmental Health, had access to the COP Blue Zone, where everything happens! Also, for the first time, WHO (World Health Organization) had its own pavilion at COP26! It was possible to listen and intervene in various debates and speak with important actors in the field of health and environment

The "health" community mobilized! We were finally able to bring "health" into the climate debate. More than 50 countries have pledged to transform the health sector so that it is more resilient and sustainable.

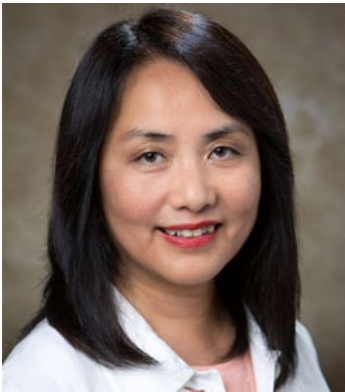
The health community has become more visible and relevant in climate negotiations. So, it's important to highlight the IFEH motto, "put health at the heart of climate action." What better justification for dealing with climate issues than the consequences they bring to our health!

Unfortunately, my overall impression on leaving the conference is that we face significant struggles in order to navigate the rather bureaucratic and unambitious result that do not correspond to the public or planet needs ... we have to take up the challenge locally to link health and climate with action and intervention.

I am asking every practitioner to answer the call to action, listen to your conscience, listen to your heart and work to promote changes to 'improve health through climate action'.

Left hand photo from Susana Paixão
Right hand photo by Markus Spiske from Pexels

International Journal of Environmental Health Research



Remarks from Professor Yudan Wei,
<https://medicine.mercer.edu/faculty/directory/yudan-wei/>

Editor-in-Chief,
International Journal of Environmental Health Research.

<https://www.tandfonline.com/journals/cije20>

It is my great pleasure to give a brief introduction to International Journal of Environmental Health Research (IJEHR) in the Magazine of the International Federation of Environmental Health.

IJEHR is a leading international peer-reviewed journal which is published under the Taylor & Francis Group. It is devoted to the rapid publication of original research papers, review articles, and technical notes in environmental health, acting as a link between the diverse research communities and practitioners in the field of environmental health. IJEHR publishes high-quality research and analysis on all aspects of environmental health research, including the interactions between the natural environment and human health, the built environment and human health, as well as communicable and non-communicable diseases in relation to environmental exposures. IJEHR is published in association with the International Federation of Environmental Health.

The Journal's impact factor has significantly increased in recent years (2020 impact factor: 3.411) and it has become a Q2 journal in environmental health.

The Editorial Board has been recently updated, which consists of a diverse group of experts in the field of environmental health from different countries.

The editors and the experienced members of our international Editorial Board are available to assist and guide authors from submission to publication.

As the Editor-in-Chief, I will continue my effort in this leadership role for the Journal, working closely with the Associate Editors and the Editorial Board, to further enhance the Journal growth and to benefit the scientific community as well as the practice in environmental health.

Zero Covid

By Chris Turner

Ever since I learnt all about infectious/communicable diseases and the control of outbreaks during my route to qualifying as an EHP, I realised the importance of the work involved and the profound impacts that they have on society as a whole.

During the Covid-19 pandemic, I have watched closely the approach taken by many countries to control the outbreaks, in particular those countries trying to keep economies running whilst letting the virus rip through their populations; essentially going through lockdown-release cycles, and perpetuating many health and economic harms caused by the virus and lockdowns.

In the absence of pharmaceutical interventions, such as vaccines, it is difficult to see how countries around the world can really get on top of this virus unless they adopt a Zero Covid strategy; this does not have to mean 'zero' cases of Covid-19 within borders. However, it does mean suppressing the virus to very low (manageable) case numbers through the rigorous use of other non-pharmaceutical interventions, i.e. traditional outbreak control measures, and keeping them consistently low.

It is a false dichotomy to believe that allowing economies to be as close to fully functional as reasonably practicable, whilst allowing the virus to rip through populations, will result in less economic harm in the long-term. We have seen it in a number of countries including the UK, and currently we are seeing it in France. It was recently declared that France's failure to lock down earlier has resulted in the virus running out of control again. Their failure to follow scientific advice was borne on the false dichotomy that locking down earlier would cause unnecessary harm to the economy. But countries who pursue this strategy will find that they will have to lock down for longer, causing even more damage to their economies. Put simply, it is the epidemic curve; the quicker you act, the smaller the curve and thus the lockdown is shorter with vastly-reduced societal impacts.

A country that allows the virus to continue to spread will mean that there are very large numbers of people who have to self-isolate. Self-isolation brings with it other problems in terms of sickness absence from work and the financial problems this causes. And it is already known that many with symptoms do not self-isolate, thus increasing the risk of further spread.

Aside from reducing the risk of health services being once again overwhelmed with Covid-19 patients, countries who adopt Zero Covid or maximum suppression strategies will find that their health systems won't be overwhelmed by a second epidemic in the future, or over the longer term, by high numbers of people presenting with Long Covid symptoms. Indeed, recently, the ONS estimated 1.1 million people currently have Long Covid in the UK, so all of these people have ongoing health issues caused by the virus, which will place a significant strain on our health service now and into the future.

Zero Covid will also reduce the risk of further lockdowns. Lockdowns cause significant health and economic problems, from increased mental health issues to the shutdown of the economy and public unrest, and all of the social problems these cause.

Significantly, regularly having to shut down education is storing up a generation of problems in the future. The health and wellbeing of children is paramount and we must remember that it is this generation we shall be relying upon to look after us when we get older.

Maximum suppression of the virus and targeting Zero Covid will also help preserve vaccination programmes and reduce the ongoing risks of emerging variants, which could reduce the efficacy of the vaccines and potentially lead to further, more sustained spikes, in infections. Indeed, a vaccine-centred containment strategy is risky without maintaining all of the other containment measures. And it is important to note that we are not safe until the whole world is safe. Brazil had 4,000 deaths in 24

hours recently and the extremely high levels of the virus in this country are likely to lead to the emergence of many more variants. These variants could prove to be concerning to the rest of the world and any one of them may have the potential to be fast-spreading and undermine existing vaccine programmes. Unless the world unites and adopts aggressive, maximum suppression/Zero Covid strategies, we will be in for regular waves of this virus, even with a vaccine; it is crucial that science and vaccines are one step ahead of the variants so that the world can finally get on top of this pandemic.

Finally, it is important to also say that a Zero Covid/maximum suppression strategy must be accompanied by strict border controls to help preserve the benefits of any lockdown. Two reasons why this virus spread so quickly are due to extensive global travel and 'porous' borders, allowing the virus to seed in countries all across the world and to transmit rapidly within populations through social contact. Even if a six-week lockdown eliminates coronavirus transmission, the absence of strict, enforced quarantine requirements for all incoming travellers means cases will be imported from neighbouring regions/countries, and if the 'R' rate exceeds 1, cases will again grow exponentially in the absence of ongoing restrictive non-pharmaceutical interventions.

In summary, the benefits of a Zero Covid strategy far outweigh those of a non-Zero Covid strategy. The trade-off is where countries have lives and economies very much back to normal within their own borders, but limited travel abroad (with very strict quarantine requirements where only essential travel is permitted). In contrast, the alternative is to continue to yo-yo between lockdowns (or some form of ongoing restrictions on our lives) and the partial reopening of the economy. A Zero Covid strategy is orders of magnitude less costly, and the evidence for this is clear. Let's just take a moment and look to East Asia for proof of this, and reflect on where the world could be with positivity and ambition to follow suit...

Chris Turner

Chartered Environmental Health Practitioner

BSc (Hons), MSc, MCIEH, CEnvH, MIOA, FRSPH, Grad IOSH

International Institute for Environment and Development (IIED)

****Apologies for cross-posting****



Dear Colleagues,

I hope you'll take the time to read the new longread from IIED, '[The road from refugee to resident: How working with displaced people can help create more inclusive and sustainable cities](#)'.

UNHCR, the UN Refugee Agency, estimates that there are currently 26 million refugees worldwide – the highest number since the end of WW2. For the recent World Refugee Day IIED wanted to take a moment to think about a less recognised population that shares many of the experiences of refugees: internally displaced people, or IDPs.

How towns and cities could respond better to the arrival of IDP and refugee populations is the subject of our project 'Responding to protracted displacement in an urban world', and of the new longread. We're working with Samuel Hall, Cardiff University, International Rescue Committee, SDI. (Slum Dwellers International), Maseno University, Dilla University, The Hashemite University, and Women's Refugee Commission, focusing on IDPs in Afghanistan and refugees in Ethiopia, Jordan and Kenya.

We believe that by working with refugees and IDPs we can create more inclusive and sustainable cities. The choice for local, national and international actors is whether to perpetuate uncertainty and exclusion, or work to include displaced people in planning better and more sustainable urban futures for all. We're aiming to provide some of the crucial data they need to take positive action. Please read 'The road from refugee to resident' now.

Please do share the longread with your networks and if you have any comments or queries don't hesitate to contact me.

Best wishes,

Anne

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This year is IIED's 50th birthday. Join us in taking a look back at some of our biggest achievements, and looking forward to how we'll continue to make a difference together.

IIED is a company limited by a guarantee and incorporated in England. Reg. No 2188452. Registered office: 3rd Floor, 235 High Holborn, Holborn, London WC1V 7LE, UK. VAT Reg. No. GB 440 4948 50. Charity No. 800066. OSCAR No 039864. IIED is recognised as an international organisation by the OECD Development Assistance Committee.

The Royal Environmental Health Institute of Scotland

The Royal Environmental Health Institute of Scotland, often referred to as REHIS, was established in 1983 following the merger of the Royal Sanitary Association of Scotland (founded 1875) and The Scottish Institute of Environmental Health (founded 1891). The Institute was Incorporated by Royal Charter in 2001.

The Royal
Environmental
Health Institute
of Scotland



The Institute is a founding member of The International Federation of Environmental Health and is a UK Competent Authority for the Professions 'Environmental Health Officer' and 'Chartered Environmental Health Officer'. The Institute is a registered Scottish charity, No. SC009406 and the affairs of the Institute are managed by a Council, elected annually by members.

The objects for which the Institute is established are for the benefit of the community to promote the advancement of Environmental Health by stimulating general interest in and disseminating knowledge concerning Environmental Health; promoting education and training in matters relating to Environmental Health; and maintaining, by examination or otherwise, high standards of professional practice and conduct on the part of Environmental Health Officers in Scotland.

The Institute is primarily concerned with the health of Scotland's people. One of the most effective ways to use scarce resources to improve public health is through education and training when learners gain knowledge which enables them to make informed choices at work or at home. The Institute is a long-established awarding body in Scotland for qualifications in Food Hygiene, Food and Health, HACCP, Control of Infection, Occupational Health and Safety, First Aid and Licensing. Courses leading to REHIS qualifications are available at Approved Training Centres throughout Scotland and delivered by suitably qualified registered presenters. Industry and Enforcement Officers recognise REHIS qualifications, not just in Scotland but nationally and internationally.

Membership of the Institute is open to persons who are suitably qualified and who work in either the community health, environmental health or public health services or are engaged in commercial or industrial activities associated with environmental health. Elected members of local authorities, health boards and persons with an interest in environmental health are also eligible for associate membership.

The work of Environmental Health in Scotland in response to COVID-19

During the ongoing Coronavirus pandemic, Environmental Health Officers have firmly evidenced their place as core public health professionals in Scotland and will continue to do so by taking a critical role in Test and Protect and Incident Management Teams throughout Scotland.

Local Authority Environmental Health teams throughout Scotland are visiting premises to ensure businesses are operating in a hygienic, safe way and complying with the health protection regulations that were brought in 2020 to help reduce the spread of COVID-19.

As the nation recovers, EHOs are there to protect the public by using engagement, education, encouragement and ultimately enforcement to achieve compliance with the legislation.

This virus shows the impact of communicable disease and its importance to respond swiftly and efficiently to deal with outbreaks as they arise. Maintaining high levels of skills and expertise within the Environmental Health profession is critical to be prepared and ready to respond to these continuing challenges.

Jackie McCabe. Chief Executive. www.rehis.com

REHIS® - Improving and Protecting Health and Well-being in Scotland

The Royal Environmental Health Institute of Scotland is a registered Scottish charity, No. SC009406

Environmental Health Australia –

“A Message from Down Under”

December 2021



As summer starts in Australia, we have the added advantage of warmer weather and, normally, a period of less respiratory illness. At this time, we tend to spend more time outdoors, enjoy a bit of a break and “recharge the batteries” through the Festive Season. So, for Australians, this is a great opportunity to further advance what has been a very successful public health intervention country wide, to control and manage a crippling pandemic. The current issues with the Omicron variant are still evolving and the initial research out of the United Kingdom has highlighted the dramatic increase in infectiousness but the jury is still out on the implications for hospitalisations and severe and long COVID19. Australia after an atrocious start is now one of the most vaccinated populations in the world with a 16+ age vaccination rate of over 90% and vaccines being administered to the 12-16 year age group. That said, the long timelines for the initial programme are now hampering booster efforts as protection wanes for many and vaccine availability has become an issue, as we move into our holiday season. However, Australia is making a significant contribution in the Asia Pacific with vaccines and information programmes to try and reduce vaccine hesitancy.

Whilst the pandemic has tended to be all consuming in recent times, it is worth noting the numerous other issues, projects and programmes that environmental health contributes to around the country, and the issues that are evolving globally. The recent declaration of El Nina conditions in Australia for the second year in a row highlights the continued warming trend over the Pacific Ocean and this will impact particularly the eastern states this summer, with higher than usual rainfall and sultry conditions. It is worth noting that undoubtedly the typical environmental health issues associated with these conditions, such as mosquito control, costs and efforts, will be ramping up over the summer as a result.

Environmental Health Australia has continued to lobby for changes in relation to skilled migration for Environmental Health Officers this year. Due to problems with the current visa system in this country many Environmental Health Officers around the country are unable to return to Australia if they venture home to see family, many of whom they haven’t seen for a number of years. With more flexibility with our international borders, we are hoping to see increases in skilled migration in coming months, including environmental health professionals to service existing shortages.

On other Company and Association matters I am pleased to announce that the next National Conference will be held in Tasmania 26th -29th September 2022, with venue to be announced shortly. Also, on the conference front the National Aboriginal and Torres Strait Islander Environmental Health conference will run 6th – 8th September 2022 in Darwin. I encourage all to keep a lookout for our “calls for papers” for the conferences and look forward to a variety of industry and research-based papers for what are always exceptional events.

Finally, I would like to extend my congratulations to all EHA state and national award winners this year with particular mention to Belinda Davies who received our most prestigious national award - the Margaret Hind Memorial Award, for her outstanding commitment to the Environmental Health industry. I would also like to acknowledge the great effort of our staff and the volunteer contribution of so many Environmental Health Professionals around Australia, on our Association and National Boards, working parties and those making a contribution in whatever way they can.

I wish everyone a safe and enjoyable Festive Season and I look forward to our freer movement within our great country and abroad in the New Year.

Philip Swain, LFEHA, National President

My experience at the COVID-19 Response Frontline Implementing Environmental Health in Uganda.

By **Tonny Tindyebwa**



Introduction

When Uganda was invaded by the COVID-19 virus in March 2020, human resource was mobilized to support several preventive measures. By the nature of the national response strategy, multidisciplinary teams like Environmental Health professionals (EHPs) were constituted to form The National COVID-19 Task Force. The major aim of the roles to be implemented was to suppress the importation of the virus into the country and ensure delay or ensure no spread of the virus to communities. This was achieved and a special recognition to Uganda's efforts was made by the Lancet review. It ranked the country as the best in Africa to have suppressed the spread of the virus.

As an Environmental Health professional (EHP), my contribution to the COVID-19 National Task Force in realizing the countries' efforts and success was timely. It included implementation of the following tasks.

Monitoring of returnee travellers in their quarantine centers

Persons returning from high-risk countries were subjected to symptom screening at Entebbe International Airport. The symptomatic were further assessed and tested for COVID-19 using PCR. We monitored the period of onset of symptoms and subsequent development for 14 days of their quarantine using a paper based COVID-19 Symptom Screening form. Data generated partly informed the incubation period of this virus in our context. Quarantined persons that needed emergency services like diabetic treatment and hypertensive monitoring were linked for onsite service delivery.

Investigation of the Confirmed COVID-19 cases

At the inception of this outbreak, there was paucity of epidemiological data of the first 54 confirmed cases Uganda had registered. The constituted eight-member team of epidemiologist on which I was a member was tasked to investigate these COVID-19 positive cases. They were in three isolation centers of Mulago National Referral Hospital, Entebbe Grade B hospital and Naguru Hospital. Following strict adherence to the Standard Operating Procedures (SOPs) under the supervision of the site-specific managers, we reviewed case files and also interviewed admitted cases. Data was recorded on a paper form and upon completion; a team member outside the glassed isolation exit door took a picture of this form that was held against a glass surface. Hard paper forms and pens that were used remained in the isolation unit as guided by the SOPs. The captured image of the form would then be printed, filed and its Information transferred in a protected computer excel sheet for analysis. Results from these efforts guided the taskforce to make critical decisions that suppressed the spread of the virus. Findings from these efforts are in a publication; *Early cases of SARS-CoV-2 infection in Uganda: epidemiology and lessons learned from risk-based testing approaches – March-April 2020.*

Supervision of a joint cross-border evaluation of COVID-19 preparedness and response mechanisms

In the spirit of regional cooperation and implementation of agreed protocols in response to COVID-19, I led a multi-disciplinary and multi-sectoral team on assessing the gains that had been registered at different official and non-official points of entry along the Uganda –Congo border. Successes were appreciated by Uganda's neighbours. Some gaps were also highlighted especially in capacities for effective implementation of COVID-19 response strategies. Recommendations were made and followed up to accelerate improved regional response to the pandemic.



Donned and ready to enter a COVID-19 isolation unit to investigate confirmed positive cases



A paper based COVID-19 confirmed case investigation form being taken outside the Isolation center after an interview



A health worker aiding in disinfection procedures after returning from conducting an interview of COVID-19 patients



Interacting with fishermen at a non official point of entry at the Uganda-DRC border point.

Supervision of contact tracing and coordination of COVID 19 Facility based surveillance

From July 2020, the country registered an increase in the number of COVID-19 cases. The virus was transmitted in almost all Ugandan local communities. Management of this Phase IV of the outbreak greatly relied on an efficient and effective linkage of local communities with the health systems at all levels. This is well understood by EHPs due to their vast experience they draw from working with community health structures. My role in this case was to assess capacities of Kampala's local community structures in supporting response efforts. Subsequently, we mentored community teams on contact tracing and the overall implementation strategy of facility-based surveillance. Majority of the EHPs were triggered through a series of hands-on mentorship while leveraging on their vast network of interdependent resources in their jurisdiction. Consequently, many referrals of suspected/probable COVID-19 cases were received in health facilities using the alert management system. Adherence to SOPs like proper masking, hand sanitization and social distancing was a message that both the local community and Facility based surveillance committees continued to affect.

Training hospital workforce on health care waste management and Infection and Prevention and Control (IPC) in the context of COVID-19

In this pandemic, healthcare facilities continue to produce more waste than usual. Ideally, masking waste from its users with or without knowledge of their COVID-19 status (positive/negative) is regarded as either infectious or highly infectious. There is less room to doubt this because majority of COVID-19 cases in Uganda are asymptomatic and thus, waste from those who testing has not identified is treated with a high suspicion index. This was further informed by triangulated experience of a transmission cycle where most health workers were getting infected. So, until thorough screening for COVID-19 of all admitted patients and their caretakers was instituted, positive cases of health worker were on a rise. As such efforts are always hindered by resource availability, continuous implementation of Infection Prevention and Control Guidelines was very important. Green Label Services Ltd, a twenty-year-old Ugandan locally based organization that is charged with regular collection, transportation and disposal of health care waste in majority of the hospitals has largely supported these trainings on IPC. As a result, infections greatly reduced among health workers.

Lessons learnt

Continuous upgrade of professional skills contributes to growth of professional confidence thus enabling insightful application of these skills beyond basics for better performance of EH roles.

There is need for EHPs to exhibit readiness in deployment with multi-disciplinary teams so that the skills' pool facilitated leveraged and drawn experiences.

Over seen evolution of Environmental Health roles post COVID-19

This pandemic has challenged many health systems. With a high level of responsiveness exhibited by Ugandan communities especially when well mobilized, health planners should consider rebuilding a more socialized healthcare leaning system.

EH inequalities which are largely distributed among impoverished populations need to be addressed through EH borne interventions. These should be supported by a well-financed EH system and a better prepared Workforce.

There is need for imploring the right investment in digital platforms of data collection and management. If such is coupled with good interpretation and relay skills, using appropriately designed and needs specific channels, communities will then be strengthened hence becoming more resilient to future disease outbreaks.

Conclusion

With targeted support, EHPs must inform the baseline health of populations through evidence-based research. Community health challenges will eventually become more transparent for consideration during planning and implementation at different levels.

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Acknowledgement:

*This article was reviewed by **Dr. David Musoke**, a lecturer and Mentor at Makerere University, School of Public Health, Department of Disease Control and Environmental Health.*

Students' excellence shared with Peers:

A perspective of Makerere University Environmental Health Students' Association (MUEHSA) in Uganda

By Tonny Tindyebwa

Introduction

Environmental Health (EH) training in Uganda's context largely premises on building capacities to address essential services delivery. The training workforce is equipped with knowledge, skills and competencies in: Monitoring and evaluation of health statuses in order to identify and solve community environmental health problems, diagnosis and investigation of environmental health problems and community hazards, conducting Health Education and promotion on environmental health issues and many others.

MUEHSA's history

The association started in 2003; three years after the Bachelors of Environmental Health Science (BEHS) program had been introduced at the Institute of Public Health which was headed by Dr. William Bazeyo at that time. Unlike other clinically oriented staff at the institute, **Dean William Bazeyo** passionately supported this BEHS program. His former students like Mr. Sam Etajak attribute this to his previously acquired training in Occupational Health. This enabled him to break away from the "clinically stuck silo attitude" and instead embraced preventive health. With only one staff at that time, the late **Tom Mwebesa** taught almost all course units in all the three years of the program. He is a peculiar icon in the history of Environmental Health who the country till now has not celebrated enough. His contribution to the evolution of EH professionals' development was and is immense.

When the first **12** students completed the program, some were requested to support teaching while others sought employment from the existing local government structures. To the surprise of the later, they were informed that they were overqualified for the existed slots. With their disappointment, they returned and worked together with both the students and those supporting the program to establish MUEHSA. This was aimed at becoming a platform to advocate for employment space. Engagements with the Public Service Ministry and other stakeholders later yielded creation of positions of Senior and principal Health Inspector, Assistant District Health Officer in charge of Environmental Health. More is yet to be achieved with current and future MUEHSA generations.

Structure of learning platforms

Makerere University School of Public Health largely supports peer learning through its conventional study structures. These include the lecture room sessions, field site visits and field attachment opportunities especially for the pre-finalist students. However, through the MUEHSA, a body that brings together all undergraduate and graduate students, peer learning has been greatly enhanced with the help of many faculty mentors like Dr. David Musoke, Patron Ruth Neebye, Lawrence Ndejo and David Katwere among others.

Peer interaction

Through peer interaction, we conduct a series of country EH challenges analysis. This informs us about the need to improve our skills and competences in order to match the market demands amidst the high competition for employment. Leveraging on the unconventional but yet targeted service - training platforms, we aimed at marketing ourselves as a springboard to employability. Through deliberate use of both formal and informal organization structures in sourcing for volunteering opportunities, it has allowed us to exercise, modify and integrate the classroom acquired skills to the

context in practice while contributing to achieving the essential services delivery objectives. Voluntarily, we have implemented activities in schools, markets, landing sites, health facilities and many other sites with EH issues of interest.

Proof of excellence

Initiated partnerships have been established with organizations like Kampala Capital City Authority (KCCA) and the Uganda Aids Information Centre (UAIC). Delivery has been on the following EH components;

1. Food safety and hygiene and personal hygiene practices like hand washing and nutrition best practices,
2. Environmental cleanliness, Disease surveillance, Public Health regulations/law enforcement and addressing climate change challenges.
3. Debates and scientific conferences have been organized focusing on critical Environmental Health issues.
4. Additionally, other student led organizations like Integrated Community Health Initiative Organization (ICHIO) have been initiated and registered.
5. Through partnerships, we continue to offer a platform for all training students in Environmental Health to interface with practice while still at university and many more.

Health records in KCCA health facilities showed very high prevalence of diseases like malaria and diarrhoea diseases. Typhoid fever outbreak had latently spread for about three years. MUEHSA Students then mobilized the Kamwokya Slum for a joint effort community exercise and addressed some associated drivers.

Below is a pictorial summary of student-peer participation in some community-based activities.



Picture 1, 3 & 4. Students, community members and KCCA staff unblocking drainage channels from the accumulated solid waste to allow free flow of surface runoff water. Breeding sites of disease vectors like mosquitoes, houseflies and cockroaches were removed thus interrupting vector's lifecycle. Through this initiative, some students have earned employment with KCCA.

Picture 2: A student (Nicholas Muhumuza) in green and yellow colour t-shirt & a Village Health Team (VHT) member after sensitizing a about breastfeeding mother preventive measures of WASH related diseases like diarrhoea which were prevalent among children.



The objective for annual scientific conferences is sharing scientific evidence from work done by students and practitioners across the divide in EH fields. Students pool resources and manage all preparation processes right from generating themes, advertising, abstract review and author contacting up to the actual realization of the conference. This peer-based initiative has enhanced several skills among students. These include; research, presentation, interpersonal, leadership, organizational, public speaking skills among others. These have greatly helped students to quickly identify career development niches and other opportunities as a result of the continued exposure to such learning platforms. Very positive appraisals have been registered over time from organizations that have temporarily or permanently employed the students. Faculty mentors have played a big role in providing direction through all these processes.



Picture 1: Faculty and conference organizers with conference guests from Nottingham Trent University-UK. L-R: Dr, David Musoke (MakSPH), Dr. Linda Gibson (NTU), Mrs. Ruth Nebye (MakSPH & Patron), Debora Ilaboya (Student-NTU), Tonny Tindyebwa (MakSPH student leader), Yesmean Khalil (NTU), Ivan Mugumya (MakSPH Former MUEHSA leader)



Picture 2 & 3. Dr. David Musoke (Faculty & Mentor-MakSPH) sharing tips on “qualities of a good power point presentation” to conference participants. Picture 3-Front row is MakSPH faculty (in glasses-Mr. Fredrick Oporia) and Mr. Opoya Willis (Faculty-School of Hygiene-Mbale)



Picture 1. Community Market entry: Seeking permission from the market chairperson and later shared findings and recommendations.



Picture 2. Different polythene material types used to cover food during preparation.



Picture 3. A sensitization session to a food handler

Adherence to Food hygiene and safety standards is still very low in Uganda. With less government investment to support improvement, residents from impoverished communities like slums are left with fewer options but to conduct their small food business within their own limiting means.

Massive establishment of poorly planned settlements have been a result of pressures from rapid urbanization. The increased demand for cheap food in these sites has had a dramatic shift from previously safer traditional food preparation practices.

Majority of food handlers have now adopted the use of polythene papers and bags as cover to their foods during preparation. The cost of the traditionally used chlorophyll rich banana leaves is justification of the use of the deadly polythene materials.

As peers, we used our weekend time to sensitize food handlers in slum markets about the dangers associated and alternative use options. Chemicals from the heated polythene material leach into the food. Although they may be ingested in small doses, their long period of exposure causes adverse health effects. Some chemicals cause metabolic disorders (including obesity) and reduced fertility. Phthalates and bisphenol A chemicals are known to be endocrine disrupters. They interfere with actions of the human hormones. These are catastrophic to pregnant women and their fetuses due to their ability to cross the placenta. The rising cancer cases and other non-communicable diseases may not exonerate their contribution.

Conclusion

- Universities like Makerere have several untapped opportunities in their surrounding communities. These are incubators where knowledge, expertise and creativity of both Community Market leaders students and faculty can be enhanced while working on addressing community health needs. Students play a very critical role of connecting with young people during their interaction at different levels like in schools and homesteads. These young people have chances of being introduced to career opportunities which they may have never thought about as possible to achieve.
- Linkages to health care services can be realized by drawing from the professional experience of participating students. This can relieve pressure from communities that may have resulted from delays of a rapidly and constantly changing health service delivery system.
- The responsible citizenship spirit is also inculcated in students through such service-learning activities. The instilled values, morals and civic character illuminate student mindsets and instil a sense of pride and inspiration towards Environmental Health service delivery.

Take away message

1. Generally, universities provide a rich resource base to development of communities. Their ability to train and enrol multi-disciplinary students alone makes them good sources of a competent workforce. The research agenda; a critical focus for most universities like Makerere can be advanced while addressing critical health services.
2. Due to inadequate financing of service delivery systems in many countries like Uganda, low staffing levels continue to be chronic. Service-learning students can be able to cushion this human resource deficient system if incentivized. It also enables them to get an insider's perspective on career and other opportunities.
3. Student participation grows leadership abilities and provides personal and professional development opportunities through their networking with multi-disciplinary teams.
4. Young people in communities have chances of being introduced to prospects of perusing tertiary education by participating students after their primary or secondary levels. This minimizes rates of school dropout which are common in slum communities. Universities can then negotiate better for access or increased funding to such life changing initiatives.

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Food safety it's in your hands – Reported hand washing and hand sanitiser use in Australian adults August 2019 and August 2020

**By Lydia Buchtman, Communications Director,
Australian Food Safety Information Council.**



Disclaimer: This consumer research was funded through a charitable donation from our members ACCORD, Symbio and Ecolab all of whom are involved in the personal care/cleaning industry. Social research company Omnipoll also donated a question asking how many times respondents used hand sanitiser or washed their hands on the previous day.

1. Summary

The Australian Food Safety Information Council has been measuring the reported knowledge of correct handwashing by consumers since 1997 in order to reduce the estimated 4.1 million cases of foodborne disease in Australia each year. Since the advent of the COVID-19 Pandemic, correct handwashing messages have been widely distributed throughout Australia in educational campaigns, including TV advertising, by the Federal, state and local government. Information about how to correctly wash or sanitise hands have been put up in workplaces, schools and public bathrooms around the country.

In August 2020 we commissioned Australian social survey company Omnipoll to conduct a further round of online consumer research about reported handwashing behaviour which we could directly compare with the previous year's research to gauge any improvement post COVID-19. Respondents were also asked an additional question about how many times they had used hand sanitiser or washed their hands on the previous day.

Surprisingly, the survey found only a 4% increase since the previous year in the number of people who said they always wash their hands after going to the toilet (up from 79% to 83%). Unfortunately, there was also a 5% drop since the previous year in the number of respondents (from 63% to 58%) saying they always washed their hands before handling food. According to research from the University College London, we should be cleaning our hands around six to ten times a day to reduce the risk of COVID-19 infection. On average, Australian adults said they washed their hands with running water and soap seven to eight times per day and also cleaned their hands using hand sanitiser four times per day therefore reaching this target.

2. Background

The Australian Food Safety Information Council is health promotion charity that has been educating the Australian community about safe food handling practices since 1997. Our membership includes Australian state and territory food and health agencies, consumer groups, local government as well as research, industry and professional organisations. Each year we run Australian Food Safety Week in the 2nd week of November followed by an Australian Summer educational campaign until the end of January when foodborne disease is more common as the weather is warmer and people more likely to entertain. We also run smaller campaigns, such as egg safety, norovirus and death cap mushrooms, on a monthly basis. Our work is evidence-based using the best available science and social research.

3. Previous handwashing studies

Correct methods of washing hands with soap, running water and drying thoroughly before preparing food and after handling riskier raw foods have been part of our key messages of 'Cook, Clean, Separate and Chill' since our inception. Over the years we have carried out social research to gauge handwashing progress which found:

- In 1997¹ 18.4% of Australians surveyed did not know the importance of washing their hands before preparing food, 39.5% of those that said they washed their hands didn't use soap and 54.1% of respondents did not wash their hands correctly with soap, running water and drying thoroughly before preparing food.
- A 2002 observational survey² of 100 men/boys and 100 women/girls found that 7% of women and 29% of men didn't wash their hands at all after using the bathroom in the food hall in an Australian shopping centre at lunch time during a school vacation. The best performers were primary school aged girls who all washed their hands. However, only 50% of these primary school aged girls washed their hands for the correct time of 20 seconds and only 55% of this age group used soap correctly. The worst performers were males of all age groups with 29% of males observed failing to wash hands at all and only 31% of those males who did wash hands used any soap.
- By 2006³ 97% of Australians surveyed recognised correctly that they should wash their hands using soap and dry thoroughly on a clean towel (although they were not asked whether they did this in practice).

4. Methodology

The Omnipoll survey was conducted nationally online over the period August 27-31, 2020, among a sample of 1232 people aged 18 years and over. To reflect the overall population distribution, results were post-weighted to Australian Bureau of Statistics data (Census 2016) on age, sex, area and highest level of schooling completed. The margin of error was +/-2.1% for a specific question while a direct comparison can be made between the answers to same questions asked in 2019 and 2020.

5. Research findings

When asked 'how often do you wash your hands' about 8 in 10 adults said they always washed their hands with running water and soap and dried thoroughly after going to the toilet or after handling raw meat or poultry. However, this proportion fell to only 6 in 10 who said they always washed their hands before handling food or after handling raw eggs.

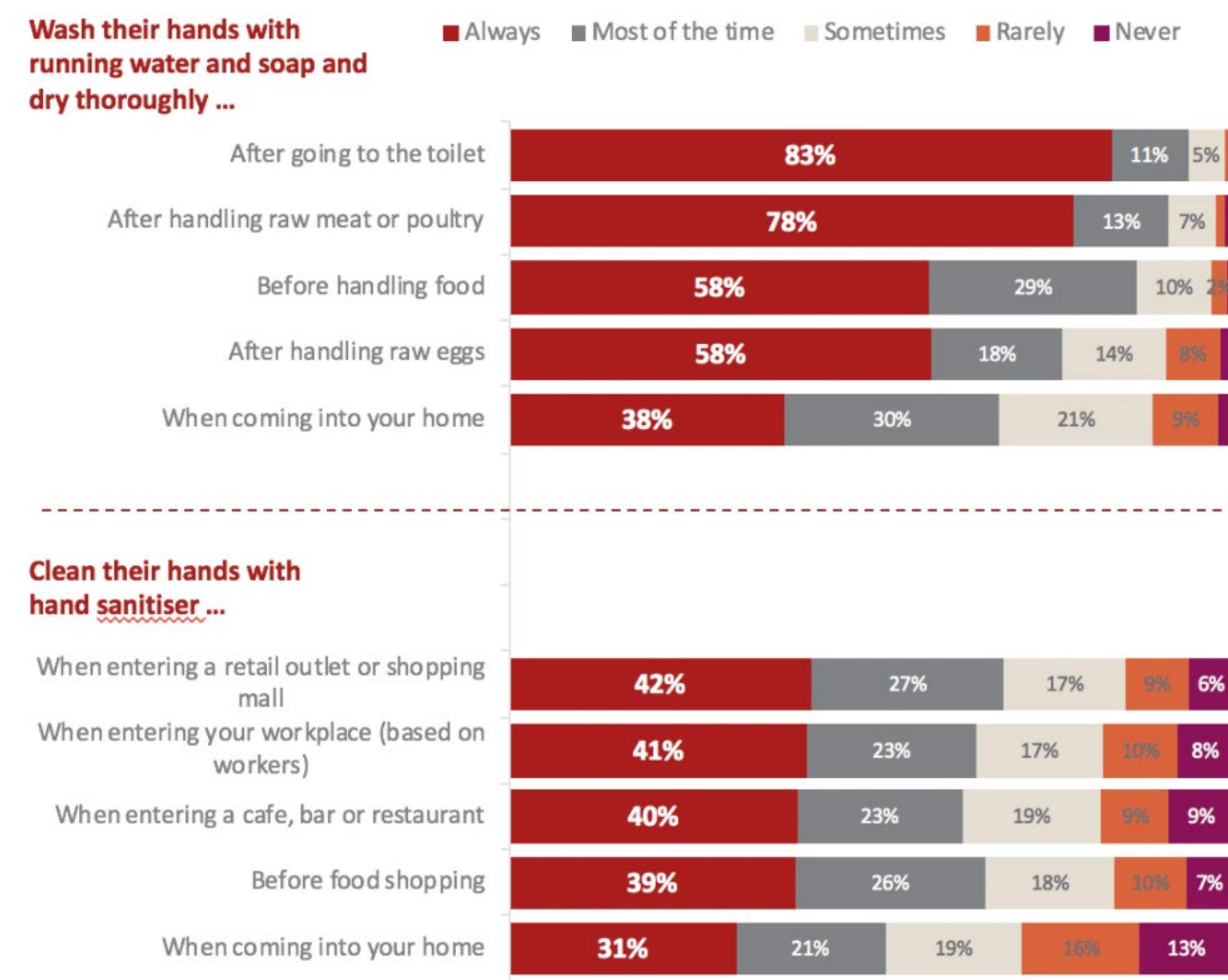
Currently, with COVID-19, about 4 in 10 adults said they always cleaned their hands with hand sanitiser in 'out of the home' situations such as at work or when shopping.

¹ Jay, L Stephen, Derio Comar and Lachlan Govenlock. 1998 Hazards and exposure in the meat distribution, foodservice and home sector: MSHE:007 report prepared for the Meat Research Corporation. NP

² Food Safety Information Council 2002 Handwashing understanding and behaviour by consumers. NP

³ Newspan 2006 Food Safety Week Study for the Food Safety Information Council NP

Figure 1 How often do you wash your hands before going to the toilet and after handling high risk foods and how often do you use hand sanitiser?

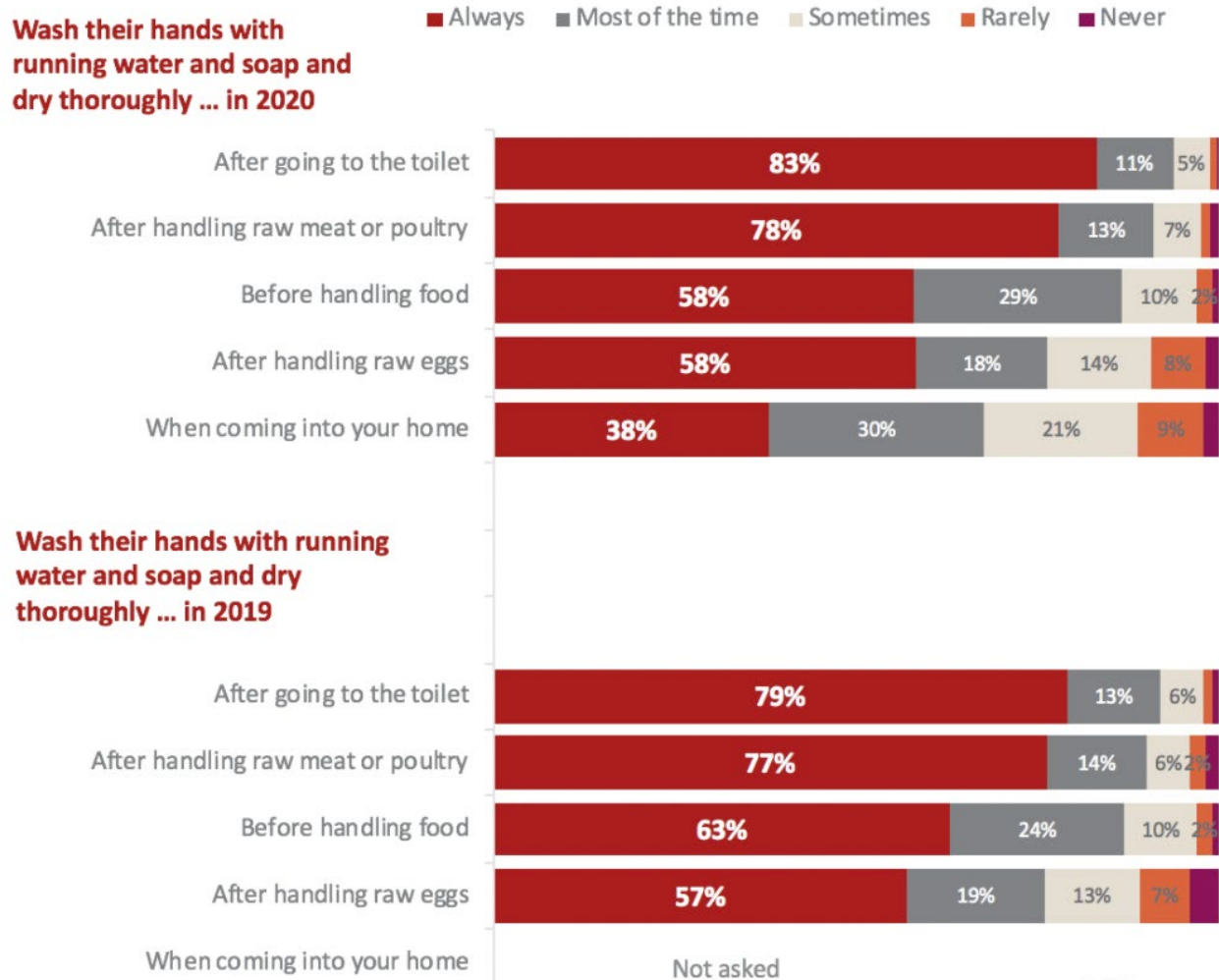


6. Comparison with 2019 results

Compared to 2019 (pre COVID-19), there was very little change, if any, in relation to hand washing frequency with running water and soap:

- 94% were doing it always or most of the time after going to the toilet (vs 92% in 2019)
- 91 % were doing it always or most of the time after handling raw meat or poultry (vs 91% in 2019)
- 87% were doing it always or most of the time before handling food (vs 87% in 2019)
- 76% were doing it always or most of the time after handling raw eggs (vs 76% in 2019)
- Hand washing frequency in the home with running water and soap has not changed with COVID-19; however, the use of hand sanitiser outside the home is up, increasing the total number of handwashing or cleaning occasions.

Figure 2 How often do they wash their hands with running water and soap and dry thoroughly: 2020 vs 2019



7. Use of soap and water versus sanitiser

According to research from the University College London⁴, we should be cleaning our hands around six to ten times a day to reduce the risk of COVID-19 infection. 1 in 5 respondents were not able to answer this question as they couldn't recall the number of times they have washed and/or cleaned their hands the day before the interview. Of those that could recall, on average, Australian adults washed their hands with running water and soap seven to eight times per day and also cleaned their hands using hand sanitiser four times per day therefore reaching the target of 6 to 10 times a day.

⁴ University College London May 2020 Handwashing 6-10 times a day linked to lower infection risk. Accessed May 2021 <https://www.ucl.ac.uk/news/2020/may/handwashing-6-10-times-day-linked-lower-infection-risk>

Figure 3: Average number of times have they washed/cleaned their hands yesterday

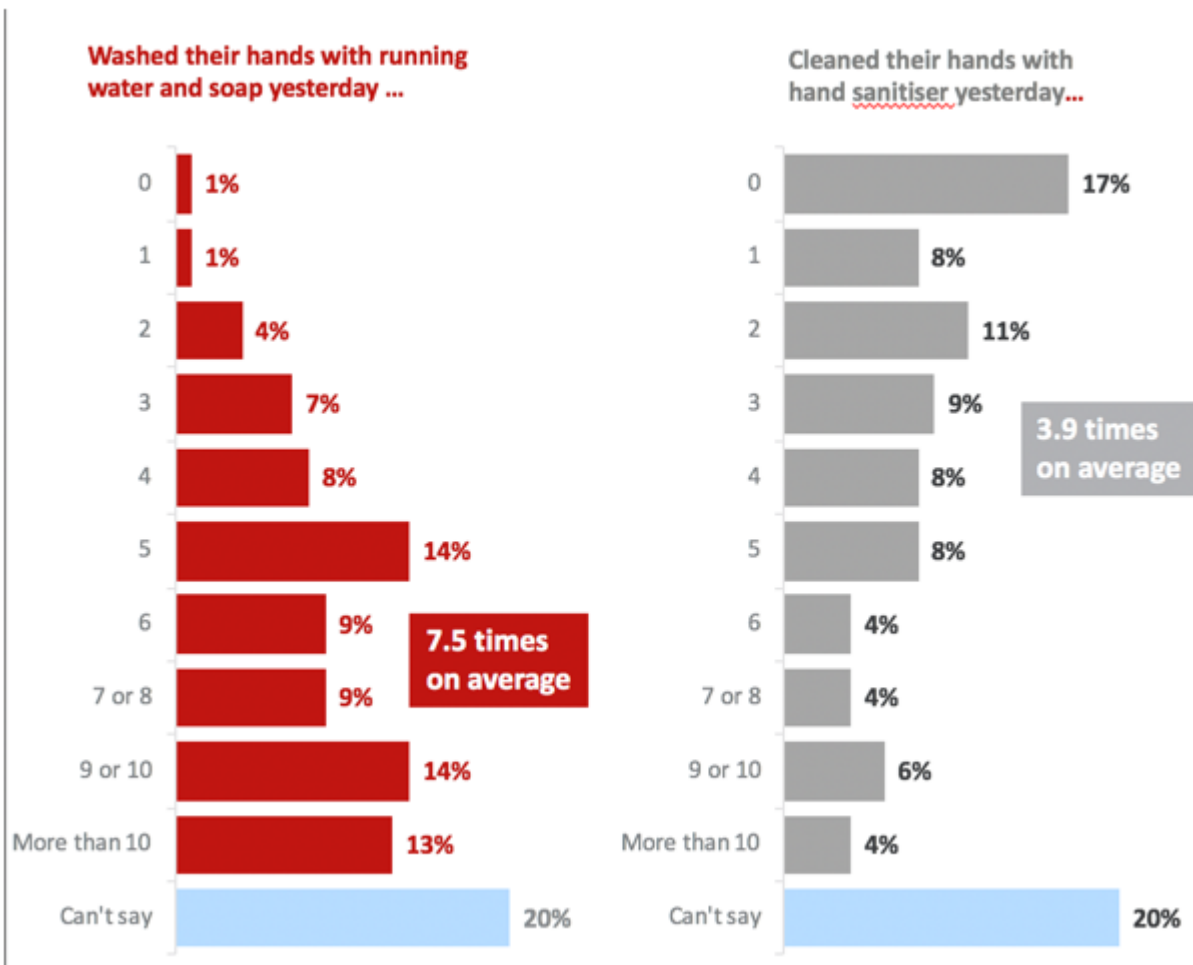
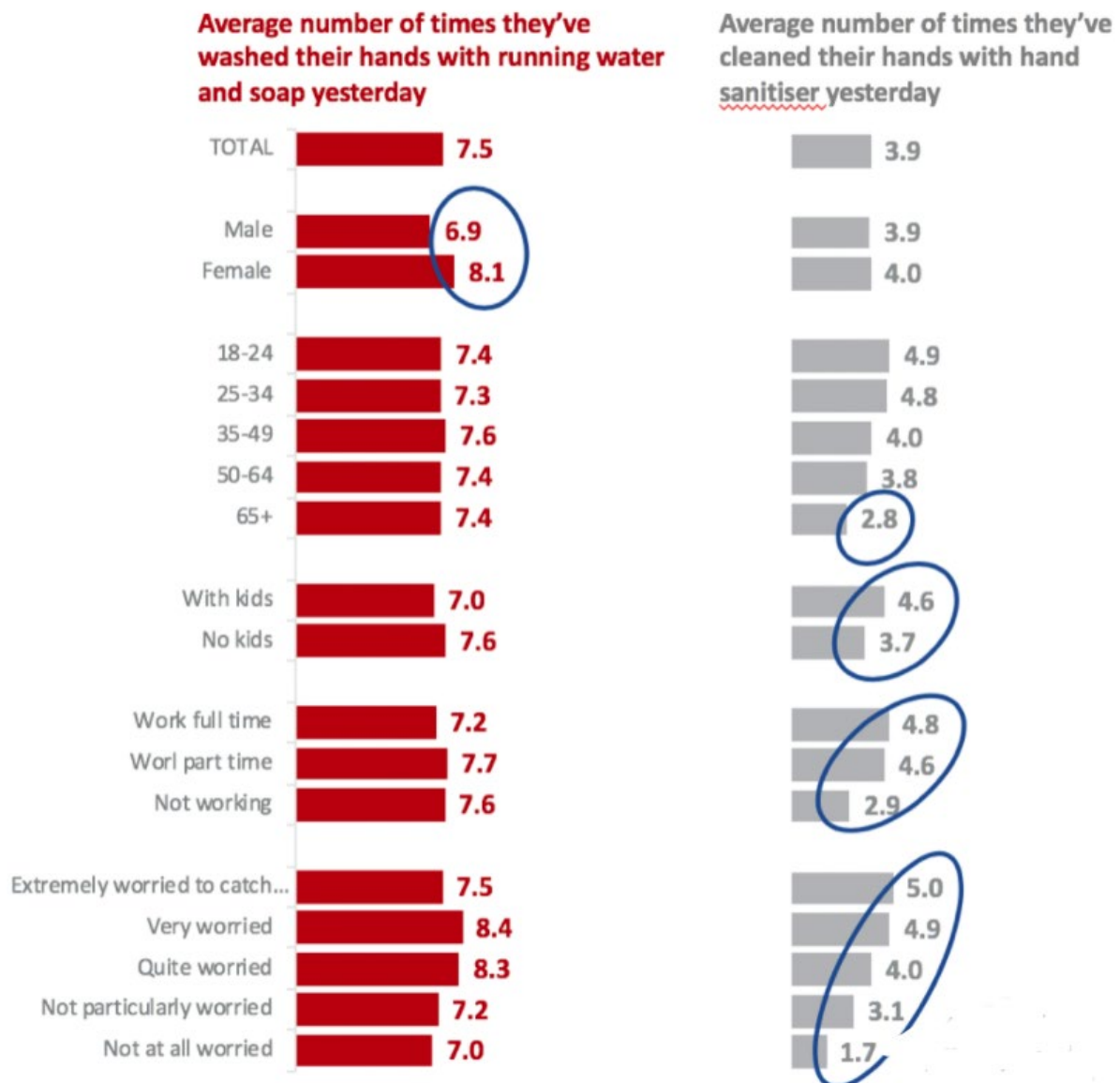


Figure 4: Average number of times have they washed/cleaned their hands yesterday by gender, age, parenthood, and employment status



When broken down by demographic factors:

- Females tended to wash their hands more often. This same pattern was already noticed as more females always washed their hands at home than males, in the different situations.
- Hand sanitiser was used less frequently by older Australians (65+) and those not working, who might not go out as much as others in the current situation.
- Interestingly, there was a strong correlation between hand sanitiser usage and people's concern about catching COVID-19.

8. Further handwashing education

Using these findings, the Food Safety Information Council launched a further handwashing education campaign on Global Handwashing Day 15 October 2021 with a [media release, poster and video](#) issued to 1500 Australian journalists via the Australian Science Media Centre.

The media release generated 24 press news items nationally reaching a total audience 1,084,846 and one TV and 13 radio items nationally reaching an audience (where recorded) of 377,000. Online news 10 items reached an audience of 707,846.

The [handwashing video](#) was also screened by Tonic Health Media free of charge in doctors' surgeries, health centers, hospitals and pharmacies in December 2020 and January 2021 where it reached an audience of over 20 million.

The handwashing message was a key component of Australian Food Safety Week and the Summer campaign with the theme 'Food Safety it's in your hands' which encouraged Australians to learn the basics of food safety including hand hygiene. This campaign included radio and tv community service announcements https://youtu.be/_asQm0UDiDs and media activity. We reached a press/magazine audience of 191,815, a radio audience of 51,000 and online articles that reached 463,268 unique visitors. Our radio spots were played nationally 5,441 times on 288 markets/stations value of \$143,148 if purchased. Our TV spots were played 1596 times on metropolitan stations, 1639 times on regional stations with a value of \$191,598 if purchased, they were also played in medical practices by Tonic Health Media.

9. Conclusion

Changing human behaviour through health promotion can be a lengthy process as can be seen through major campaigns such as Australia's National Tobacco Campaign which has lasted many decades⁵ and saw adult daily smoking rates reducing from 25% in 1991 to 11.6% in 2019⁶. The reported handwashing behaviour of Australians has slowly improved since the Food Safety Information Council commenced handwashing campaigns in 1997 but we thought the COVID-19 Pandemic and the resultant mass messaging about handwashing would have made a more significant increase in handwashing behaviour in 2020/21. It would be interesting to compare handwashing/cleaning behaviour in countries where COVID-19 community infection was higher than Australia which, by May 2021, has only had 30,000 cases and 910 deaths⁷.

The Food Safety Information Council will continue to run handwashing campaigns in 2021 with a focus on preparing educational materials for primary school students including instructions, videos, a competition and an educational demonstration of handwashing using UV light.

Footnote:

The Food Safety Information Council Ltd is a health promotion charity and the national voice for science-based, consumer-focused food safety information in Australia. We aim to reduce the number of Australians getting sick from food poisoning by providing simple, easy to follow consumer information on the handling, storage and preparation of food. Each year there are an estimated 4.1 million cases of food poisoning in Australia that result in 31,920 hospitalisations, 86 deaths and 1 million visits to doctors on average every year.

<https://foodsafety.asn.au/>
info@foodsafety.asn.au

⁵ Australia. Department of Health. National Tobacco Campaign <https://www.health.gov.au/initiatives-and-programs/national-tobacco-campaign> Accessed May 2021

⁶ Australian Institute of Health and Welfare. 2020 Tobacco smoking <https://www.aihw.gov.au/reports/australias-health/tobacco-smoking> Accessed May 2021

⁷ Australian Government. Coronavirus (COVID-19) current situation and case numbers <https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-current-situation-and-case-numbers> Accessed May 2021

A National Environmental Health Research Centre In Ghana Post Covid-19 Era

By Samuel Yaw Agyemang-Badu

Environmental Health is the branch of Public Health that is concerned with all aspects of the natural and built environment that may affect human health. According to the World Health Organization, in its broadest sense, Environmental Health comprises those aspects of human health, disease, and injury that are determined or influenced by factors in the environment. Environmental Health also refers to the theory and practice of assessing, correcting, controlling and preventing those factors in the environment that can potentially affect adversely the health of present and future generations. It is noted however that, Environmental Health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments.

The objects of the Environmental Health Profession are; to assess, correct, control and prevent those factors in the environment that can potentially affect adversely the health of present and future generations; to preserve, protect, and improve the quality of life for human beings; to control those elements of the environment which cause, or may cause deleterious effects to the health and well-being of human populations or to the food and drink, lands, waters, atmosphere, shelter and other resources upon which humanity is dependent for survival; to prevent and control infectious, communicable & non-communicable diseases which have afflicted humankind through the centuries.

According to Eldridge and Tenkate, 2006; Ryan et al., 2013, Environmental Health Practitioners (EHPs) play a significant role in all stages of disaster management due to their many and varied areas of expertise. Degutis, 2008 opined that, EHPs are well-placed to assess the impact of disasters on populations and conduct evaluations of responses due to their population-based focus and holistic approach. Falk and Baldwin, 2006; Ryan et al., 2013; Ministério da Saúde, 2017 indicated that, reports from past disasters around the world, such as Hurricane Katrina (United States), Pedrógão Grande fires (Portugal) or the Chemical Fire at Waste Control Pty Limited in Bellevue (Australia), emphasized the value of Environmental Health interventions and practice. These include: (1). Reducing the vulnerability of communities to hazards and increasing their ability to respond, withstand disruption and recover rapidly; (2). Collaborating on hazard identification and risk assessment; (3). Strengthening routine services so that the potential health effects of emergencies and disasters are minimized; (4). Considering elements such as drinking water, hazardous waste, general waste, sanitation, food safety, communicable diseases, vector issues, or mass gatherings in the context of disaster response; (5). Precautionary safety measures such as ensuring social distancing and hygiene practices during food handling.

The Environmental Health Profession has never been more vital than it is today. The twin challenges of Ghana and Africa being plagued with environmentally related diseases and infections such as malaria, cholera, typhoid etc. and of the recent Coronavirus (COVID-19) global pandemic, has shone a light on the essential role Environmental Health Professionals/Practitioners (EHPs) play in supporting and protecting our lives, businesses, keeping our communities safe, and protecting our environment. Ranging from premises surveillance and inspection, waste management, food safety to housing standards, and from public health to environmental protection.

EHPs are at the forefront of efforts to improve the health of Ghanaians long before and during this public health pandemic. The year 2020 and beyond has made their role all the clearer due to the COVID-19 global pandemic. The impact of the COVID-19 pandemic has been monumental in highlighting the need for health and local authorities to be properly resourced and for their local expertise to help shape Central Government's approach to public health. The response to COVID-19, by Governments across the globe including Ghana, of imposing a series of national and regional lockdowns, alongside mass testing and tracing, necessitated a significant reliance on local authorities to implement these policies.

There has also been a growing appreciation of the importance of the Environmental Health Profession by Central Government during this COVID-19 pandemic era. EHPs have been on the frontline in enforcing business compliance with lockdown restrictions and providing guidance and support for businesses to become COVID-19 secure. EHPs have also proven to be a valuable resource in supporting test and trace.

EHPs under the Ministry of Health and its Agencies as well as at the Local Government (i.e., Metropolitan, Municipal, and District Assemblies, MMDAs) and other sectors across the country, were at post because they fell under the essential services stipulated by the National Labour Act (2003, Act 651) and they were further exempted by the President of the Republic of Ghana's directives on the COVID-19 restrictions and lockdown as essential services providers, providing Environmental Health and Sanitation Services.

EHPs, who are working under the Accra Metropolitan Assembly (AMA) and other Sub-Metros in the Greater Accra Region where COVID-19 cases keep Surging and as such, these areas are classified as the Epicentres of the infection with its related higher deaths, are overwhelmed with frequent daily Burial of Dead Bodies of persons who succumb to the deadly Coronavirus. The work of these EHPs with regards to burial of dead bodies as well as terminal disinfection of the Isolations Centres and treatment sites for the COVID-19 infected persons has putting enormous pressure and stress in terms of workload on these Officers since the outbreak of the pandemic.

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The Urgent Need For A National Environmental Health Research Centre (NEHRC) In Ghana Post COVID-19 Era:

During this COVID-19 global public health pandemic, with Ghana recording cases since March 2020, the prescribed measures and protocols to prevent people from being infected and subsequent spread of the deadly disease in communities and institutions are all based on Environmental Health and Hygiene interventions. Namely; 1). Strict wearing of appropriate face masks at all times; (2). Frequent hand washing with soap under clean running water at all times; (3). Sanitizing of hands with alcohol-based hand sanitizers with 70% alcohol; 4) Observing social distancing between ourselves and others at least one (1) metre apart at all times; (5). Strictly observing hygienic cough etiquette at all times; (6). Sanitary disposal of used personal protective equipment (PPEs) such as used face masks and tissue papers into appropriate waste bins.

However, Environmental Health Professionals/Practitioners (EHPs) serves as backliners who perform various activities such as terminal disinfection of isolation centres where persons who died from the COVID-19 infection were being treated or cured. EHPs are the authorized Public Health professionals who are involved in the burial of COVID-19 Dead Bodies as well as other infectious diseases like Cholera. This point to the fact that EHPs are both front liners and backliners in public health emergencies and pandemics of infectious nature like COVID-19.

Since the onset of the COVID-19 pandemic and the subsequent declaration of a public health emergency by the world health organization (WHO), the very key measures being adopted by every state health authorities and Governments are that, every person (s) who is going to or in the public place (s) must wear an appropriate personal protective equipment (PPEs) such as disposal nose/face masks or reusable locally made three (3) layers face/nose mask to safeguards themselves from contracting the novel Coronavirus disease (COVID-19) and these prescribed measures are being adhered to and complied with by every citizens across the globe.

However, among the PPEs most used by everyone to prevent contracting and spreading the COVID-19, is the face/nose mask. It is unclear with scanty of data that cannot show vividly the quantities of the face/nose masks that were in stock in the Country before the outbreak of the Coronavirus pandemic and the current quantities of these same face/masks that have been procured by Government as well as produced locally, by our local producers since the onset of the pandemic in our territory, Ghana which are been patronized by people due to the mandatory wearing of the PPEs of which failure to do so attracts serious punishment. The mass usage of these PPEs has resulted in the generation of huge volumes and tons of infectious and general wastes in the communities due to the increase demand of these face/nose masks. The inappropriate and indiscriminate disposal of these PPEs has serious and dire consequences and implications on the health, environment and lives of everyone according to public health experts.

Therefore, the establishment of a National Environmental Health Research Centre (NEHRC) in Ghana, under the Ministry of Health (MOH), would help managers of the NEHRC, EHPs and other interested actors in the Environmental Health and Public Health sector to conduct scientific research and projects to determine the impact of the COVID-19 on human health, environment, occupational health, food hygiene and safety, sanitation, port health services and other specialized areas of the Environmental Health Sector that are of much importance and concern during this COVID-19 era.

Also, the NEHRC among its duties will carry out comprehensive assessment of various categories and classification of wastes (infectious and general) in Ghana that has been generated during the COVID-19 pandemic. In addition, the determinants of community and institutional spread of COVID-19, the adherence and compliance of the prescribed Environmental Health and Hygiene measures and protocols by community members, where and who needs handwashing and sanitary facilities to ensure effective practicing of hand washing could be discovered.

Furthermore, aside the Coronavirus (COVID-19) pandemic and its related deaths, the World Health

Organization (WHO), estimates that 12.6 million deaths (about or 23%) of all global deaths could be linked to environmental risk factors such as poor sanitation, air pollution, climate change, pesticides and vector-borne diseases.

Children's Environmental Health, vector-borne diseases and contamination of drinking water sources have been identified as the top three major and growing Environmental Health threats in Malaysia that warrant urgent intervention. This was revealed in the Health Ministry's National Environmental Health Action Plan's latest publication, Priority List of Environmental Health Issues in Malaysia. The list detailing ten (10) key concerns was developed by the Thematic Working Group 10: Environmental Health Experts which was led by its chairman, Professor Dr Jamal Hisham Hashim.

Other issues in rank order in the study were urban health; climate change; food safety and contamination; exposure to pesticides and other environmental chemicals; zoonotic diseases; exposure to ionising and non-ionising radiation; and particulate and ground-level ozone pollution.

It is my strong believe, conviction and anticipation that, the establishment of the National Environmental Health Research Centre (NEHRC) in Ghana, under the Ministry of Health (MOH), will serve as robust and reliable research hub on Environmental Health issues in the country, that will help the MOH to determine the various Environmental risk factors plaguing the nation and its citizens that needed urgent attention and intervention as Malaysia and other countries has done, that will go a long way to protect and safeguard the health and lives of the Ghanaian populace.

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The Rise of Private Environmental Sanitation And Waste Management Companies – The Calamitous Fall Of Environmental Health Departments/Officers a.k.a Tankas/ Samansaman, A Government Preventive Health Professionals In The 21st Century In Ghana

By Samuel Yaw Agyemang-Badu

I hope Ghanaians in the past centuries and during the colonial days, witnessed the era of Health Inspectors aka Tankas/Samansaman as they were popularly called, (which means Town Council/Summon Summon in the Twi local dialect) in our communities and houses, who were under the Ministry of Health (MOH) with the establishment of the now Schools of Hygiene (SOH) and the training of health inspectors, before they were transferred to Ministry of Local Government and Rural Development (MLGRD) (Metropolitan, Municipal and District Assemblies – MMDAs) in 1994 by the National Democratic Congress (NDC) Government led by the late Former President Flight Lieutenant Jerry Rawlings.

I strongly believed and hope Ghanaians are possibly witnessing the same Health Inspectors (now Environmental Health Officers) from 1994 under the MMDAs till date, 2021 and their performance as Preventive Health Officers then under the Ministry of Health and now under MMDAs.

Respectfully, let us frankly ask ourselves as Ghanaians, whether there are major positive changes that we do appreciate, with regards to Health Inspectors or Tankas/Samansaman (now Environmental Health Officers) since they were transferred from MOH to the MMDAs of the Ministry of Local Government and Rural Development. During the days of Health Inspectors or Tankas/ Samansaman under the MOH, these Preventive Health Officers were fully resourced, equipped and recognized under Ministry of Health than now that they are working under auspices of MMDAs across the country.

These Preventive Health (Sanitation) Officers had the powers at their disposal to arrest and deal with anybody under every Sector including the MMDAs they are currently working under as their administrative employer. Sadly however, since the unfortunate and unplanned transfer of the Health Inspectors (Tankas/ Samansaman) to the MMDAs in 1994, those powers they had then, do not exist and not at their disposal compare to their era under the MOH, so therefore these Officers cannot arrest, prosecute and deal with their Bosses (MMDAs) or landlords as was being done before and as a results, the proactive work of Health Inspectors (Tankas/Samansaman) of the olden days died off the very day they were transferred to MLGRD (MMDAs), resulting in the dire consequences and filth that has engulfed the society of Ghanaian communities today.

Ironically and the last stroll that brings the Carmel's back, is the inception of Private Environmental Sanitation and Waste Management Companies in the Environmental Health and Sanitation Sector through public private partnership (PPP) in 2006 that birthed Private Environmental Sanitation and Waste Management Companies such as Zoomlion Ghana Limited as subsidiary of the Jospong Group of Companies, has further crippled the work of the Preventive Health (Sanitation) Officers aka Health Inspectors (Tankas/ Samansaman) across the MMDAs, though these private companies were to compliment and partner the work of the Health Inspectors (Tankas/ Samansaman) to ensure we have high standards of Environmental Health and Sanitation in Ghana. Before the establishment of these private companies, the Environmental Health Officers had sanitary labourers under their supervision at the various MMDAs to ensure that our communities and Assemblies were cleaned on daily basis as well as embarking on their daily routine premises/house to house inspection in all communities and houses across the country with the aim of detecting public health/statutory nuisances and call for their abatement in our various homes to strictly ensure that Ghanaians has serene, clean and conducive environment and premises free of filth at all times, safe environment for human habitation, improved standards of sanitation in and around the communities (homes) and public places, in order to prevent environmental and sanitation related diseases such as cholera, typhoid, dysentery, malaria, etc. for a healthy lives of the Ghanaian populace as enshrined in the Public Health Act 2012 (Act 851) and the Criminal and Other Offences Act 29,1960).

To add insult to injury, the Ministry of Local Government and Rural Development (MLGRD) (Metropolitan, Municipal and District Assemblies–MMDAs) is political appointment ministry/agencies and therefore, essential Services like Environmental Health, Sanitation and Waste Management should not have even been transferred to such Ministry/MMDAs from the Ministry of Health (MOH).

In countries where the systems are working and well planned such as in Europe, Environmental Health and Sanitation Services are under the City Councils which are devoid of the political terrain as we are practicing and witnessing in Ghana. Interestingly moreover, in other parts of the world, Environmental Health Officers are still under the Ministry of Health, performing the same duties as their qualified and licensed Colleagues' Officers in Ghana, however those in abroad such as Europe have been given the necessary powers and authority to enable them work as expected as the nation's Preventive Health (Sanitation) Officers, So how can these same preventive health professionals (Officers) in this country be placed under major Political Ministries such as the Ministry of Local Government and Rural Development, Ministry of Sanitation and Water Resources etc. and still are under resourced and not recognized but we expect them to perform excellently???? How can they execute creditably with so much interferences from politicians amidst attitude from the Metropolitan, Municipal and District Assemblies in this era of gross indiscipline by Ghanaians towards Environmental Health and Sanitation in the country without effective enforcement of the Environmental Health and Sanitation Acts and Bye-laws due to Gross Political Interference????

Unfortunately, with this PPP arrangement, Government of the day has always as their cherished, comfortable norm and practice, award contracts on Environmental Health and Sanitation in MMDAs to these private companies who are now almost doing everything that formerly the Preventive Health (Sanitation) Officers (Environmental Health Officers) were doing. This gloomy development has relegated the qualified and licensed Environmental Health Officers by the Allied Health Professions Council (AHPC), Ghana across the MMDAs in the country to the mere background. Currently, at the mentioned of Environmental Health and Sanitation, these Private Environmental Sanitation and Waste Management Companies most especially Zoomlion Ghana Limited a subsidiary of the Josping Group of Companies, is the body/authority that comes to mind/scene to respond to the issues whilst the Government's owned trained and licensed Environmental Health Officers are nowhere to be found and nobody seems to know that such a key health professional even exists. Despite this unfortunate situation, the unrecognized Environmental Health Officers are the only Preventive Health Practitioners mandated by law to ensure our communities, streets and homes are clean through their routine premises inspection, this the private Environmental Sanitation and Waste Management Companies have no mandate to do. So, the burning question is, which of these two bodies must be resourced and empowered if we really want our communities and the country to become the cleanest in Africa?

It saddened my heart and soul as a qualified and licensed Environmental Health Practitioner and academia, when Ghanaians are rather calling for the return of Health Inspectors (Tankas/ Samansaman) of the olden days, while these Environmental Health Officers or Tankas/ Samansaman People are in the Metropolitan, Municipal and District Assemblies (MMDAs) across the country. So, I asked, what is the big deal then, if these Preventive Health (Sanitation) Officers are fully recognized and resourced to work in keeping our communities and vicinities clean for public health and safety if we really aspire to see Ghana the cleanest country in the African continent?

It is important to note with all seriousness and the attention needed that, not until Government and the MMDAs in power re-visit the olden days Health Inspectors (Tankas/Samansaman) and accord them their long-lost glory, power and authority to work without fear or favour in carrying out their legal mandated duties enshrined in our Laws/Acts, Ghana cannot achieve the cleanest country in the African continent.

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National Schools Inspectorate Authority (NaSIA) Pre-Tertiary Educational Institutions require Adequate And Sanitary Facilities As A Mandatory Requirement Before Licensing Them To Operate in Ghana

By Samuel Yaw Agyemang-Badu

It is refreshing, great news and excitement as an Environmental Health Practitioner upon hearing the current regime of licensing of Pre-tertiary schools by National Schools Inspectorate Authority (NaSIA) before they could operate in the country. This is a wonderful step in the very right direction and the way to go with regards to the achievement of the Sustainable Development Goals (SDG)

- four (4): Quality Education, and
- six (6): Clean Water and Sanitation and
- three (3): Good Health and Well-Being in Ghana.

However, I would like to call on the NaSIA to strictly ensure that adequate and standard sanitary facilities (toilets, waste bins and handwashing facilities) are provided in all Pre-tertiary Schools (both public and private) as a mandatory-checklist-requirement before issuing them with license to operate as part of the registration and licensing of Pre-tertiary schools in the country by the Authority.

According to the Media Coalition Against Open Defecation (M-CODE), thirty percent (30%) of basic schools in Ghana lack toilet facilities. However, the remaining seventy percent (70%) who are somehow fortunate also have lavatories that are badly conditioned. The same challenge is noted to be faced with majority of health institutions, such that a number of community health-based planning services (CHPS) Compounds, Clinics and Hospitals in the country at the moment has no toilet facility and that staff resort to open defaecation (OD) in the bush as the only option for survival.

In 2008, the Education Act, 778 established the National Schools Inspectorate Authority, formally known as National Inspectorate Board (NIB) with 3 main responsibilities:

- (a) Schools Inspection,
- (b) Schools Evaluation and
- (c) Enforce Standards.

The National Schools Inspectorate Authority (NaSIA) is an agency of the Ministry of Education mandated by Parliament to provide an independent external evaluation of the quality and standards in basic and second cycle educational institutions in the country on a periodic basis. According to NaSIA, a New and an Existing Schools are any Pre-tertiary schools established after the passage of and/or established or operating before the passage of the Education Regulatory Bodies Act 2020 (Act 1023). The NaSIA is therefore responsible for registering and licensing all Pre-tertiary educational and training institutions and facilities in Ghana.

Currently, available statistics has it that one out of every five Ghanaian defaecates outside a toilet facility each day. This represents close to 6 million people. It is also estimated that the act of open defaecation (OD) cost the country some US\$79 million annually through tourism loss, water pollution and death among others.

Provision of adequate and standard sanitary facilities in our Pre-tertiary schools will go a long way to prevent Open Defaecation (OD) on the School compounds and also ensure and inculcate handwashing practices among the pupils and children after using the toilet as well as proper waste management practices, to prevent infectious disease outbreaks such as Cholera and also to prevent the COVID-19 disease we are currently fighting as a nation.

Moreover, the provision of adequate waste bins in this Pre-tertiary educational institutions will lead to proper waste management practices by the pupils and children and as a result there will be serene, clean and conducive environment free of filth at all times, safe environment for human habitation

(staff, students, clients and visitors), improve the standards of sanitation in and around the schools' compound in order to prevent environmental and sanitation related diseases (such as cholera, typhoid, dysentery, malaria, etc.) in order to promote teaching and learning.

According to Hoque (2003) and Global Handwashing Day (GHWD, 2008), the high prevalence of diarrhoeal diseases as well as other infectious diseases amongst students in that matter, school children due to poor hand washing, personal hygiene and sanitation remains a distress on the public health agenda in many countries and continents. However, hand washing with soap is professed among the most effective and inexpensive methods to prevent diarrhoeal diseases and pneumonia in combination are accountable for the majority of child deaths worldwide each year.

The Public Private Partnership for Hand Washing (PPHW, 2014) opined that, hand washing is a cornerstone of public health, and new hygienic practices as well as sanitary services were basic drivers of the sharp drop in deaths from communicable ailments in developed countries in the late 19th century. Alongside with the proper management of human faeces and the supply of sufficient quantities of clean water, hand washing with soap has been established among the most effective methods to prevent diarrhoeal infections and has been also the cheapest technique.

Curtis et al. (2009), assume that when hand washing turns out to be part of daily habits in childhood it does not easily disappear. Hence, schools form an ideal foundation for skills-based hygiene education, where children could acquire and put up with life-long hygiene practices.

Furthermore, I will humbly urge the NaSIA to continue to collaborate with the Metropolitan, Municipal, and District Assemblies (MMDAs) as well as the Ghana Health Service and Ghana Education Service to adequately resource and support the Registered Environmental Health Officers under the MMDAs and the Ghana Health Service to effectively enforce those requirements stipulated in Section 54 & 56 of the Public Health Act, 2012 (Act 851) by conducting regular inspections of the Pre-tertiary schools to ensure that available sanitary facilities are in very good conditions for the patronage of pupils and teachers as well as strict adherence and compliance of the COVID-19 prescribed measures and protocols.

It is my kindest appeal to the NaSIA to create an effective working collaboration between the Authority and the Environmental Health and Sanitation Departments/Units of the MMDAs and endeavour to include a registered Environmental Health Officer among the Schools Inspectorate Team (Team of Inspectors) of the NaSIA that recommends the issuance of license to Pre-tertiary schools after the inspections are carried out. According to Section 19 of the Public Health Act, 2012, (Act 851), an Environmental Health Officer is a health professional who is involved in health promotion, education and who controls activities that have adverse consequences on the environment, public health and safety. In Ghana, Environmental Health Professionals' (Officers) training and practice is regulated by the Allied Health Professions Council of Ghana (AHPC) under the Health Professions Regulatory Bodies Act, 2013 (Act 857).

Amongst the duties and responsibilities of Environmental Health Officers are: Inspects, controls, and manages sanitation in public places; Assists in community-based environmental sanitation campaigns and public education; Educate the public on environmental health issues and regulations and Enforces environmental health laws, acts and policies.

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A request to H.E Nana Addo – Bawumia Government.

Please consider Establishing More Environmental Health Training Institutions And Upgrade Existing Schools of Hygiene (SOHs) To Degree Level: As A Matter of Urgency To Help Tackle Poor Environmental Health and Sanitation in Ghana

By Samuel Yaw Agyemang-Badu

The training of professional public health inspectors (currently Environmental Health Officers/Practitioners) started around 1925 during the colonial days at Ajabeng in the Accra Metropolitan Area (AMA). The establishment of the Schools of Hygiene (SOH) under the Ministry of Health (MOH) then, was primarily the only recognized tertiary institution to train qualified public health inspectors with certification from the Royal Society of Health (RSH), London, United Kingdom. After Ghana gained independence, the West African Health Examination Board (WAHEB) took over the certification of these health professionals. Later, Ghana Health Examination Board (GAHEB) also came into the picture as the certificate awarding body. However, there has been a reversal of the certificate awarding body back to the West African Health Examination Board (WAHEB) through the Ghana Chapter of the WAHEB.

During the colonial era, upon the successful completion of a two and three year Certificate in Public Health Inspection and Diploma in Public Health Inspection programmes respectively, candidates were posted to work as Health Inspectors under the Ministry of Health (MOH). Moreover, along their practice and with the need for change to reflect current trends, the name Health Inspector was changed to Environmental Health Officer (EHO).

Currently, the only Environmental Health Training Institutions (EHTIs) that trains professional Environmental Health Officers and Assistants (EHOs/EHAs) are, the Three Schools of Hygiene (SOH) located in Accra, Ho and Tamale which still trains only Certificate and Diploma graduates and these schools are affiliated to the Kwame Nkrumah University of Science and Technology.

In Ghana currently, Environmental Health Professionals' training and practice is regulated by the Allied Health Professions Council of Ghana (AHPC) under the Health Professions Regulatory Bodies Act, 2013 (Act 857), and therefore they are registered and licensed before they can practice as applies to other health professionals such as Nurses, Medical Doctors, Medical Laboratory Scientists, Pharmacist etc.

What then is Environmental Health? It refers to the theory and practice of assessing, correcting, controlling and preventing those factors in the environment that can potentially affect adversely the health of present and future generations. It is noted however that, Environmental Health also addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments.

The objects of the Environmental Health Profession are;

1. to assess, correct, control and prevent those factors in the environment that can potentially affect adversely the health of present and future generations;
2. to preserve, protect, and improve the quality of life for human beings;
3. to control those elements of the environment which cause, or may cause deleterious effects to the health and well-being of human populations or to the food and drink, lands, waters, atmosphere, shelter and other resources upon which humanity is dependent for survival;
4. to prevent and control infectious, communicable and non-communicable diseases which have afflicted humankind through the centuries.

Who is then an Environmental Health Officer? An Environmental Health Officer is a person who is trained in the sanitary sciences, biology, chemistry, geology, physics, mathematic etc. and operates as an inspector or health official in the public sector or private industry, reviewing programmes and enforcing laws to protect public health. He or she is also a public health professional whose responsibilities may include food sanitation and safety; air, water, and environmental protection; inspection of well-water and sewage-disposal systems; control of insect pests, and animals; disease control and epidemiology; housing, occupational; and institutional safety and sanitation and nuisance control.

According to Section 19 of the Public Health Act, 2012, (Act 851), an Environmental Health Officer is a health professional who is involved in health promotion, education and who controls activities that have adverse consequences on the environment, public health and safety. Environmental Health Officers (EHOs) play a significant role in all stages of disaster or pandemic management due to their many and varied areas of expertise. These health professionals are well-placed to assess the impact of pandemics and disasters on populations and conduct evaluations of responses due to their population and community-based focus and holistic approach to their work in protecting public health and safety among the Ghanaian populace.

Amongst the duties and responsibilities of Environmental Health Officers (EHOs) are; they inspect, controls, and manages sanitation in public places, assists in community-based environmental sanitation campaigns and public education, educate the public on environmental health issues and regulations and enforces environmental health laws and policies. These duties are performed through routine premises inspection (house to house), health education and promotion activities, sitting of household latrines for households, labour supervision of sanitary labourers and orderlies, market sanitation, inspection of public eating premises e.g. (restaurant). Also includes waste management, school health education programmes, slaughterhouse and abattoir duties (meat inspection), food safety (inspection of expire date of food items such as canned foods), vector control activities such as mosquito control, through disinfestations or fumigation.

Unfortunately and sadly, since time immemorial, Ghana has not been able to run a professional Bachelor of Science degree in Environmental Health for its Environmental Health Practitioners. Rather only Certificate and Diploma programmes in Environmental Health are on offer since 1925. It is therefore urgent and prudent for the H.E Nana Addo–Bawumia Government to establish more of the Environmental Health Training Institutions (EHTIs) to run professional B.Sc. Environmental Health programmes for Certificate and Diploma Holders in Environmental Health and Senior High School graduates to boost the human resources capacity of the Environmental Health and Sanitation sector in order for Ghana to achieved the cleanest cities in Africa as the President has promised and envisaged.

The decade's absence of a professional Bachelor of Science degree in Environmental Health has uncharacteristically led to the unfortunate recruitment of quacks (graduates) without professional Environmental Health background and requisite licenses into the MMDAs to work as Environmental Health Officers / Analysts.

Recently, the Local Government Service (LGS) has been recruiting graduates with first degree programmes in an unrelated disciplines/areas into the various Environmental Health Departments/Units under the MMDAs to work as Environmental Health Officer/Analysts to the extent of assuming **Headship Positions** over the professional Environmental Health Officers/Assistants registered and licensed by the Allied Health Professions Council of Ghana (AHPC) established by the Health Professions Regulatory Bodies Act, 2013 (Act 857), the only legal instrument that backs the practice of all health professions in Ghana, just because the LGS assumes and believes that the registered and licensed professional Environmental Health Officers/Assistants are not graduates with degrees.

However, according to the Health Professions Regulatory Bodies Act, 2013 (Act 857) and AHPC regulations, one can only practice Environmental Health in Ghana if that person was admitted and trained by recognized public or private institution that has been accredited by the Allied Health Professions Council with the School of Hygiene (SOH) inclusive.

Interestingly, the University of Health and Allied Sciences (UHAS) in Ho, Volta Region has started a Bachelor of Science degree programme in Public Health with an option in Environmental Health that is accredited by the AHPC for their graduates to practice as EHOs.

Moreover, according to the International Standard Classification of Occupations (ISCO-08), International Labour Office (ILO), 2012, Geneva. (Unit Group 2263, page 145) under Environmental and Occupational Health and Hygiene Professionals, EHOs has been captured and assigned with special codes such as Environmental Health Officer 2263; Health Inspector 3257; Sanitarian 3257; and Sanitary Inspector 3257.

Notably, amongst Laws/Acts enforce and/or implement by registered and license Environmental Health Professionals in Ghana with legal backing from the HPRBA, Act 857 and AHPC regulations are: Health Care Waste Management Policy, MOH, 2020; Public Health Act, 2012 (Act 851), Part One-Communicable Diseases, Part Four-Vector Control and Part Five -Environmental Sanitation; International Health Regulations (IHR), 2005 and the Criminal and Other Offences Act 29, 1960.

As the country is faced with dire consequences of selling of food under insanitary conditions, poor sanitation, vector borne diseases such as malaria etc., where we need the services of professionally trained and certified Environmental Health Officers with Masters and Ph.D. degrees in Environmental Health. The Local Government Service (LGS), recruiting graduates without Environmental Health background and the requisite license or credentials is neither the best option nor the solution. Sadly enough, these graduates are now learning on the job as my colleagues and I interacted with some of them.

To this end, as our dear President, H.E Nana Addo Dankwa Akufo-Addo passionately called on all Ghanaians to be **“Citizens And Not Spectators”** and as a good and patriotic citizen as well as a proud and concerned Environmental Health Practitioner and not a spectator, I would like to humbly call on the President, the Parliamentary Select Committee on Health and Sanitation as well as the Ministry of Sanitation and Water Resources (MSWR) to as a matter of urgency consider establishing more Environmental Health Training Institutions (EHTIs) in the country and also empower other Universities/Colleges to run professional Environmental Health programmes at Degree, Masters and Ph.D. levels to strengthen and modernize the preventive public health workforce in their readiness to handle emergent pandemics such as the current rampaging and deadly Coronavirus (COVID-19).

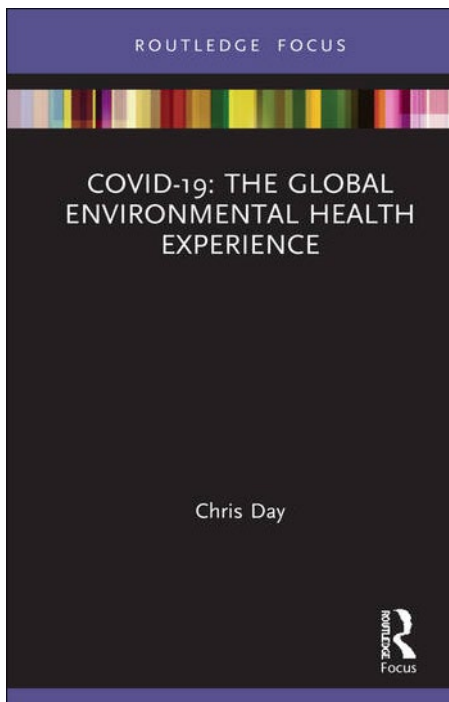
It is very ironic, funny, retrogressive and unproductive, that graduates who were not trained in professional Environmental Health and are not even qualified to be licensed by AHPC as such, are been recruited to practice as Environmental Health Practitioners and lead the Development and issuance of technical guidelines on Environmental Health Management and Services as well as provide technical advice for the formulation of Environmental Health policies, when the Government has the opportunity to establish more EHTIs as well as Upgrade the existing Schools of Hygiene (SOH) to Degree, Masters and Ph.D. levels.

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COVID-19 The Global Environmental Health Experience



Colleagues should acquaint themselves with the excellent new book written by Dr Chris Day and published by Routledge, UK. ISBN 9780367743161 · 146 Pages.

This book is devoted to the efforts of Environmental Health Practitioners (EHPs), their employers and supportive professional bodies world-wide in responding to the COVID-19 pandemic.

Drawing upon the first-hand experiences and reflections of EHPs working across the professional discipline in countries around the world, the book highlights how they responded to the initial wave of SARS-CoV-2 infection as it spread globally. It explores how this impacted on their environmental health work as their wider public health skills and expertise were increasingly called upon/ The book recognises the significant contributions that EHPs have made to protect lives and livelihoods since the seriousness of COVID-19 became apparent. It also identifies shortcomings in the response and deployment of personnel and makes a series of recommendations to inform future practice.

This book:

- captures a moment in history through the experiences of Environmental Health Practitioners in meeting the complex challenges presented by the COVID-19 pandemic.
- features the observations of front line practitioners on the practical challenges and opportunities encountered globally, suggesting the lessons learnt for current practice in infectious disease prevention and control.
- expands upon the reflections of some of the professional bodies around the world as to how the response of EHPs to the COVID-19 pandemic should result in a renewed commitment to public health through Environmental Health.

EHPs in current practice and in training, other public health professionals and those looking to build better health protection services, now, and in the future, will find this book a valuable resource to inform the case for the key role of Environmental Health in the current pandemic, in response to future challenges and crises, and in managing risks to health encountered in more usual times.

COVID19 around the world.

An EH perspective - on the ground, management and looking forward.

By Steve Kipkurgat

The Town of Victoria Park is an inner-city local government with a staff compliment of 211 full time employees and a community of 35,000 with more than 500 small businesses. The Town has one of the longest café strips on a high street. The Town is located at the precincts of City of Perth, the capital city of Western Australia.

When COVID 19 was declared to be a pandemic, the Town moved swiftly to follow all Federal and State expectations under the declared States of Emergency including shutting down all non-essential parts of the business to ensure the health and safety of staff and community members whilst maintaining all essential services.

These essential services included

- Providing information for the community and its businesses on the changes to normal business via our website and social media networks
- maintaining customer service operations to continue communication with the community on day-to-day items
- continuing to manage rates, infringement and any other fee payments
- establishing then maintaining the flow of credible and current information from the Federal/State Governments Covid-19 messaging through our social networks to our community
- waste, road and park maintenance as well as our Ranger services who also played a part in assisting with local Police issues when required
- Environmental Health services particularly with a public health role as directed by the Department of Health WA as well as assisting with local Police issues when required

Fortunately, the Town was in a transitional phase of moving towards a working from home or remote working model at the time of the Pandemic declaration so our transition to working from home was fairly smooth with little business disruption. Since this time the Town has further strengthened its ability to have staff work remotely to the point where at the last lockdown/restriction event decisions were made, staff and community information broadcast and all Department of Health WA requirements ready to be met within two hours of the lockdown/restriction announcement by the WA State Premier.

This strengthened state of readiness from the Town has instilled a sense of confidence in our community, built resilience in our local businesses and played a great part in reducing stress and concern for all stakeholders in this dynamic and ever-changing environment.

Back to the start of the Pandemic now as all of the previous mentioned management didn't just occur by chance. The Town reacted swiftly to activate their Business Continuity Plan (BCP) as well as creating a Business Continuity Group (BCG) to implement the Plan. Another group was created that was specifically tasked with looking at all matters relating to COVID 19. This second group is called COVID Management Group (CMG).

The EHO team were critically important members of both of these groups to ensure all other members had access to the most current and credible Information as our team have close and strong working relationships with the Pandemics Hazard Management Agency, Department of Health WA, with these relationships proving vital in accessing important information or clarity of information to enable business decisions to be made quickly and appropriately.

The two groups worked very closely and met virtually (online) daily. BCG met at 9am and CMG met at 11pm to look at BCGs proposals and approve them. CMG was where major decisions emanating from BCG were made. These two groups formulated and put protocols in place to ensure that staff and members of the community were safe during the pandemic as well as maintaining our essential business services.

For the six members of the Towns EHO team there was an adjustment phase of getting used to working from home and still meeting the expectations of State and organisational expectations, particularly for a team used to working actively out in the field.

The EHO team ably and effectively planned and formed strategies to effectively meet these needs including reviewing the current processes and procedures, changing where required and formulating new ones to meet the ever-changing environment we were in.

The state government also played an important role in identifying and acknowledging the work Environmental Health staff played in managing the pandemic. The State's leaders were always seen alongside the Chief Health Officer. Environmental Health was instrumental when the restrictions were eased and worked closely with the public and businesses in explaining to them what was required while they ensured that the Health Department protocols were followed.

Our incredible EHO team continue to work tirelessly to fulfil the roles expected of us including the most current expectation of visiting and inspecting local businesses to ensure compliance with visitor/patron registration at relevant facilities, such as cafes and community groups, which shall facilitate speedy contact tracing if it is required. At this point in time, I am happy to report that all inspected facilities are at 100% compliance which I believe is due to the strong connection between the Town and its community and businesses and the continued provision of current and credible information to assist all stakeholders.

I would like to acknowledge the incredible work that has been and continues to be completed by the incredible Environmental Health Community around the world, this has been a most challenging year and you all deserve recognition of your efforts so far and acknowledgement of what is yet to come.

Together we will get through this.

Steve Kipkurgat
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23 June 2021



Special Issue Promotion: "Climate Driven Health Impacts"
International Journal of Environmental Research and Public Health [IJERPH]
Impact Factor Released: 3.390

Special Issue Information

Dear Colleagues,

The world's climate is changing. The increasing frequency and severity of extreme weather events make news headlines around the globe and every year new records are set for weather related measures such as temperature and precipitation. While changes in long-term climatic averages have more subtle impacts on health, extreme environmental events such as flooding caused by glacial melting or intense rainfall, wildfires as a consequence of drought and intense heat, and dust storms caused by high winds over land denuded by improper use and drought, are bringing the health impacts of climate sharply into focus. Even events like the COVID-19 pandemic can have a climate component as changes to the climate bring wildlife in closer proximity to humans.

Media coverage of local, regional and global environmental incidents has raised awareness of the public to the impact of climate on human health and this in turn has galvanised a political response to climate change. Climate action is now seen by many as an important election issue. This raised awareness and increased level of concern about climate change presents an opportunity to lobby for more research to better understand the relationship between climate and health with a particular focus on strategies and programs to protect health.

Some of the research themes that need further exploration are centred around:

- heat adaptation strategies of vulnerable populations, particularly in the developing world and tropical regions.
- heat induced diseases among certain occupational groups such as outdoor workers in tropical regions.
- acclimatisation strategies.
- changes in mosquito and other disease vector distribution.
- air quality impacts
- climate and zoonotic disease.

Special Issue Editors

Prof. Dr. Jacques Oosthuizen

Dr. Neil J. Hime

Prof. Dr. Peng Bi

Dr. Andrew Mathieson

We are pleased to announce that the 2020 Journal Impact Factors have been released by Journal Citation Reports. Based on citation activity on Web of Science, the Impact Factor for /IJERPH/ has increased to 3.390.

There has been continued growth in the Impact Factor for six years. On Web of Science, /IJERPH/ ranks 41/176 (Q1) in "Public, Environmental & Occupational Health" (SSCI), 118/274 (Q2) in "Environmental Sciences" (SCIE), and 68/203 (Q2) in "Public, Environmental & Occupational Health" (SCIE).

Editors can provide up to 10 discount vouchers (300 CHF each) to the authors that are accepted for the Special Issue.

https://www.mdpi.com/journal/ijerph/special_issues/Climate_Driven

The impact of covid-19 restrictions on complaints of noise made to a local authority in Northern Ireland during 2020 - a case study.

Lindsay Shaw, Dr Aaron Lawson, Paul McCullough (Ulster University).



Abstract

The covid pandemic with national lockdowns and restrictions has profoundly affected people's lives in many ways including the experience of neighbourhood noise. While initial research indicated a rise in noise complaints at the start of restrictions in London during Spring 2020 (Tong, 2021), a case study involving a single local authority in Northern Ireland indicates a different experience when the full 2020 year was analysed. Total number of complaints did not see a statistically significant increase when compared to the 5-year average. While there were increases in some categories of noise of interest (loud music and parties, noise associated with anti-social behaviour), the comparison with the 5-year average did not show a statistically significant difference. The only category of noise that seen an increase of significance was noise complaints relating to retail. This may be explained by increased demand in essential food retail as well as social distancing requirements, limitations to customers inside premises and changes made as the retail sector adapted. A wider study involving local authorities across Northern Ireland, the UK and across countries that experienced lockdown measures may reveal a more accurate picture of the impact of neighbourhood noise experienced during the covid pandemic.

Literature Review

Impact of Noise on Health and Wellbeing

Noise is commonly defined as unwanted, unpleasant, or disturbing sound. Noise is perceptive and sound that one person thinks is desirable or acceptable may well be perceived as unwanted and disturbing to another.

None the less, noise is recognised by the WHO as an important public health issue and the negative health impacts on health and wellbeing a growing concern (WHO, 2018). The WHO Large Analysis and Review of European housing and health Status (LARES) (WHO 2004) included a large scale evidenced based and peer reviewed analysis on the health effects of noise exposure. It concluded that annoyance from neighbourhood noise had identified health impacts that were independent of social economic status and housing conditions. Excessive noise is known to harm human health (short term and long term) and interfere with people's daily activities at home, work, school etc. It is widely accepted to cause disturbance to sleep having a range of health impacts as well as affecting performance. Noise is also known to cause cardiovascular and psychophysical effects, reduce performance and provoke annoyance responses and changes in social behaviour (WHO, 2021),

Highlighted as the second worse environmental cause of ill-health, behind only ultrafine particulate matter (PM_{2.5}) (European Environment Agency, 2014), noise has attracted policy development aimed at reducing the exposure of populations to environmental noise and improving health. However, these have focused on sources such as road, rail, aircraft and more recently in the WHO Environmental Noise Guidelines for the European Region, 2018, Wind Turbines and Leisure Noise. Policy is focused on these issues with an aim in driving down noise levels over time and to prevent further increases.

However, neighbourhood noise is more difficult to identify for assessment and study. It does not happen at a particular place and at a particular time. There are many variables and often a result of people's activities and attitudes. Noise that causes the most annoyance are those perceived as not normal, avoidable, happen at night and are loud and the impact on the complainant is linked more to the lack of control that the person has on the situation and on the motives attributed to the noise maker (Levy-Leboyer and Naturel, 1991).

Noise Complaint Incidence

Neighbourhood noise, while not as widely studied is frequently present and a major cause for complaint to local authorities that are responsible for the investigation and enforcement. The CIEH Noise Survey 2019/20 Report on findings- England (2021) found that there were 131,645 noise complaints recorded from the 117 local authorities that submitted responses equating to 6.7 complaints per 1000 people.

In NI, the Department of Agriculture, Environment and Rural Affairs (DAERA) have a strategic role in all environmental matters including air quality and noise. They have been collating data from local authorities in NI since 2003/04 and have a robust data set with all local authorities participating. The last published report is for the year 2017/18 and indicate that noise complaints are 40% than they were when they started the surveys with yearly variations as can be expected. 2017/18 NI as a whole saw a 2.8% decrease from the previous year. The report comments that noise complaints occur more in urban areas with Belfast City Council, the local authority with the highest population density, reporting 19.9 noise complaints per 1000 people, whereas Newry Mourne and Down District Council having a more disperse population reporting 2.5 complaints per 1000 persons). This would be resonant on more limited data available from the CIEH survey (CIEH, 2021) with Greater London, with the highest population density, having twice the number of noise complaints per head of population than the average in England. People in closer proximity and exposure to others are more likely to have problems with noise.

Covid-19 response in the UK and Northern Ireland

Covid-19 was declared a “Public Health Emergency of International Concern” by WHO in January 2020 and was officially declared a pandemic in March 2020. Countries around the world adopted different measures. Some to prevent entry of the virus into the country, while other countries adopted strategies to slow and contain the spread as it has already entered the country concerned. The strategies that have been common in many countries, whether national or locally, were “lockdown” measures that were unprecedented and unthinkable only a few months previously.

As cases started to rise in February 2020 and the beginning of March 2020 in the UK, the policy of “delay and contain” already had started to change people’s behaviour and businesses were beginning to adapt. However, the public health situation was continuing to worsen.

On 16th March 2020, the UK Prime Minister (PM) addressed the public and asked everyone to ensure social distancing and avoid group gatherings if they can (The Health Foundation, 2021). This was the start of events and gathering being cancelled and the public started to be wary of going out. In NI St Patrick Day celebration and events were voluntarily cancelled on public health concerns.

On the 23rd March 2020, the PM again made another public announcement only this time it was a “stay at home” message with emergency legislation put into place in the forthcoming days. “Lockdown” in the UK had begun. There was a clear “Stay at Home, Protect the NHS, Save Lives” public health message. People worked from home where they could, schools shut, home schooling started, and many that could not work from home were furloughed. Only essential retail was allowed to open such as food retail. People were asked not to leave their home and only to do so if it was essential such as getting food or medication and they should only leave the home for exercise once a day. For the first time, most people were at home for an extended amount of time. (The Health Foundation, 2021).

Initially it was thought that lockdown would only be required for a short period however, its necessity was needed for a much longer period and there has been restrictions in place with variation on stringency and variations for different areas at different times.

- In Northern Ireland, 18th May 2020 saw the first cautious easement with outdoor garden centres and recycling centres opening and on 19th May 2020 small groups of 6 people could meet outdoors with social distancing. This was now 9 weeks after lockdown began.
- Non-essential retail re-opened mid-June 2020 with restaurants and cafes allowed to open from 3 July 2020.
- July 2020 saw more easement, but the situation remained restrictive. By mid-August 2020 numbers of positive covid cases were rising and there were warnings that lockdown measures might have to be re-imposed.
- Schools reopened in September 2020 and bars that only sold alcohol indoors opened but by the end of the September a curfew of 11pm was introduced.
- By mid-October 2020 restrictions were again tightened with pubs and restaurants closed again and schools getting an extended midterm break for a period of 2 weeks.
- November and December 2020 saw various cycles of slight easement and restrictions with the year 2020 ending back in lockdown. (NI Direct Government Services, 2021)

The impact was undoubtedly massive. Roads and public transport went quiet, city centres were not bustling, air travel effectively stopped. What normally happened in the background that most do not notice in the day-to-day noise environment went quiet as human behaviour and communities changed. “The Quiet Project”, supported by the Institute of Acoustics and Association of Noise Consultants, is an acoustics community effort to create a publicly accessible database of environmental sound levels across the UK during the COVID-19 lockdown and subsequent recovery period started and full results are still forthcoming (IOA, 2020). In London, an average reduction of 5.4 dB (LAeq) was noted comparing noise measurement datasets from Spring 2019 and Spring 2020 (Aletta et al., 2020).

This noise reduction may have benefited many. In one survey (not peer reviewed) carried out by One Poll on behalf of Hyundai, a third (34 per cent) heard birdsong in built-up areas for the first-time during lockdown, with this figure rising to 42 per cent in London. (Hearn, 2020)

However, others may have their sound environment change negatively. Background noise such as roads may mask birdsong, but it also masks other noise including noise from neighbours and other noise sources in the area. Noise that may occur all the time may have missed or not noticed by people as they were out working at school or just out and about in what were normal situations and activities. For example, the dog next door may have been barking excessively before lockdown, but now people were at home and could hear it. Lockdown may have contributed to anxiety, obsessive behaviours, paranoia, and depression (Ausín et al., 2021; Dubey et al., 2020; Dzhambov et al, 2021) and noise is already linked to some of these.

Some initial research has been carried out on the impact lockdown had on noise complaints. Tong et al (2021) report that noise complaints increased significantly (47%) across London during Spring 2020. In their concluding remarks they recommend that more analysis of the longer-term impacts of lockdown and restrictions on noise complaints would be of interest as would variations across regions (Tong et al., 2021).

This study looks at one local authority area in Northern Ireland as a case study and the trend in noise complaints reported to it during the full 2020 year.

Methodology

Data is gathered by each local authority in NI on complaints of noise made to the Environmental Health Department. The information recorded includes the date when the complaint is made and the type of noise with categories covering animal noise (mainly barking dog), loud music and parties, noise from retail and industry, noise in the street, wind turbine noise as well as others. Personal information is also gathered for the investigation purposes but was not obtained nor needed for the purposes of this study.

Such information has been gathered for a substantial number of years and a course of rich information.

The data on the date of complaint and category of noise was obtained for one local authority for the purposes of a case study. The data for 2020 (January – December 2020) was collected. There are 11 Local authority populations in NI ranging from 117,000 to 342,000 people. A local authority volunteered to partner with Ulster University to complete this case study research, but it was not at either end of the population number and density scale.

To make a comparison, the data for the 5 previous years (2015-2019) were similarly collected.

Comparisons were made between noise complaints in 2020 with a 5-year average, similar to how excessive mortality is reported (PHE, 2021).

The data was broken down month by month to show the trends as the year progressed.

Analysis was carried out to determine if there were any statistical differences between these 2 groups ("2020" and "5-year Average"). This was carried out using a 2 tailed paired t-test. Values less than 0.05 indicate that the 2 groups are statistically different with a 95% confidence level. Values between 0.05 and 1 indicate there is no statistical difference between the 2 groups.

This analysis was carried out on all noise complaints and then repeated on specific categories of noise including

- Loud Music and Parties
- Animal Noise (e.g., barking dogs)
- Antisocial Behaviour
- Other Neighbour Noise
- Retail Related (grouping filing stations, car washes, hot food bars and restaurants, ice cream vans, other shops and offices and street traders)
- Construction
- Industrial and
- Agricultural

Several categories were not analysed as complaint numbers were small or considered not likely to be affected by the pandemic e.g., wind turbine noise. It was also decided to merge some categories that had small numbers. Filing stations/car washes, ice cream van chimes, hot food bars/restaurants, other shops and offices and street traders were merged as "Retail Related".

Results

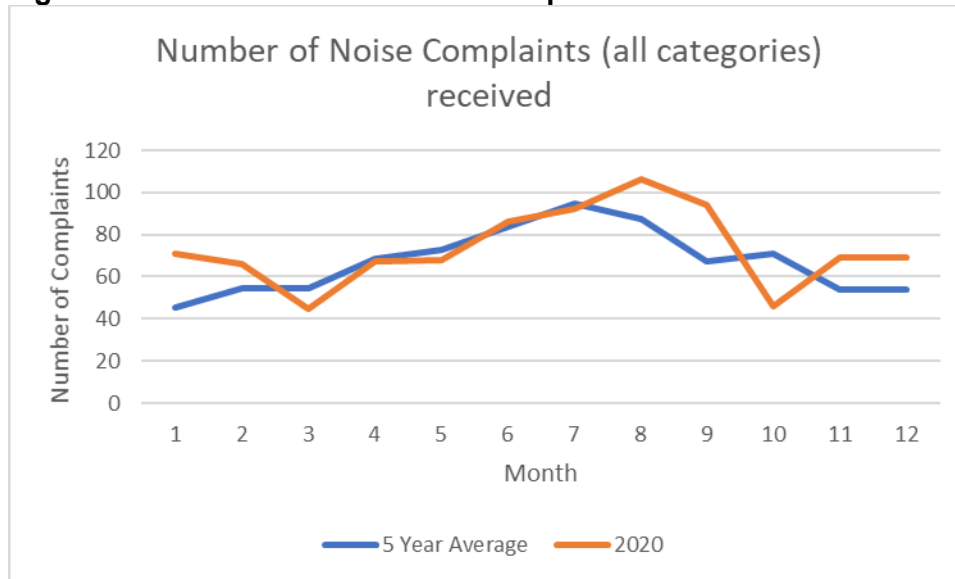
In this case study local authority, there was no significant difference ($t=0.21$) for the overall number of complaints (Table 1)

Table 1 Overall Number of Complaints

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec		
5 year average	45.2	54.8	54.6	68.4	72.6	83.6	94.8	87.2	67.4	71	53.8	53.8	t test	0.21
2020	71	66	45	67	68	86	92	106	94	46	69	69		

The month-by-month trend (Figure 1) also indicates similarity with some differences in August and September when restrictions has eased some but the longer-term trend over the year was similar

Figure 1 Overall Number of Noise Complaints



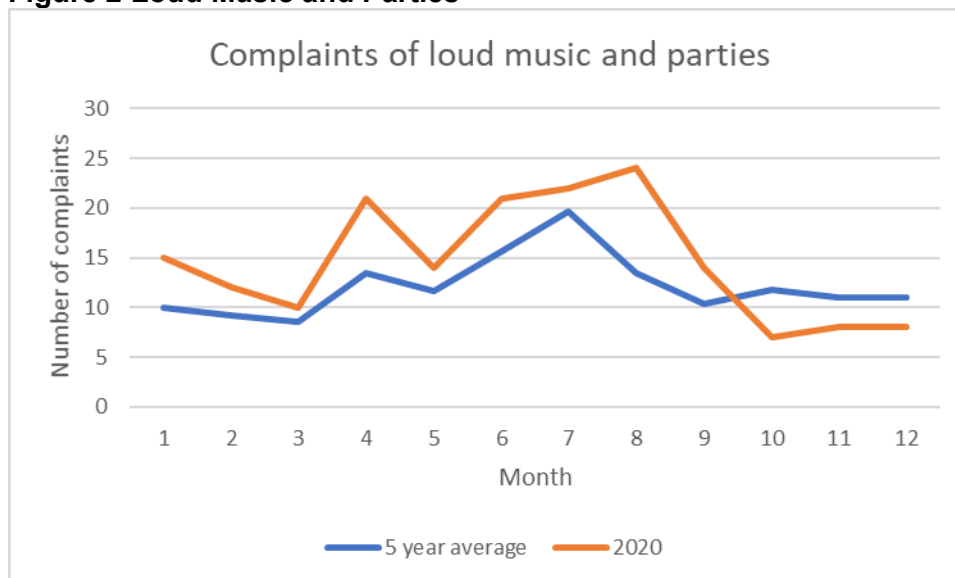
The different categories of noise were more closely examined for statistical difference, and it had been thought, based on the findings of research in London in Spring 2020 (Tong et al., 2021), that loud music and parties may have showed differences. However, when the analysis was carried out no significant difference was found ($t=0.08$) (Table 2)

Table 2 Loud Music and Parties

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec			
5 year average	10	9.2	8.6	13.4	11.6	15.6	19.6	13.4	10.4	11.8	11	11		t test	0.08
2020	15	12	10	21	14	21	22	24	14	7	8	8			

The month-by-month trend (Figure 2) indicates increases over a number of months however there was surprisingly a reduction at the later months.

Figure 2 Loud Music and Parties

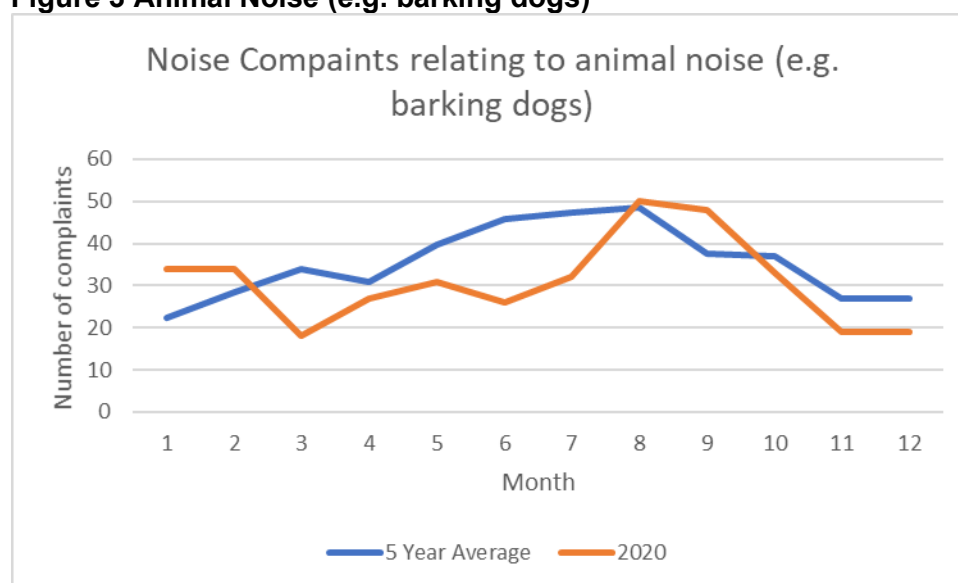


Animal noise complaints, the majority of which are barking dogs, also did not show significant difference from the 5-year average (Table 3)

Table 3 Animal Noise (e.g. barking dogs)

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec			
5 year average	22.2	28.4	34	31	39.6	45.8	47.4	48.4	37.6	37	26.8	26.8		t test	0.16
2020	34	34	18	27	31	26	32	50	48	33	19	19			

The month-by-month trend (Figure 3) indicates that for quite a number of months there was a reduction in the number of complaints from animal noise (mainly barking dogs)

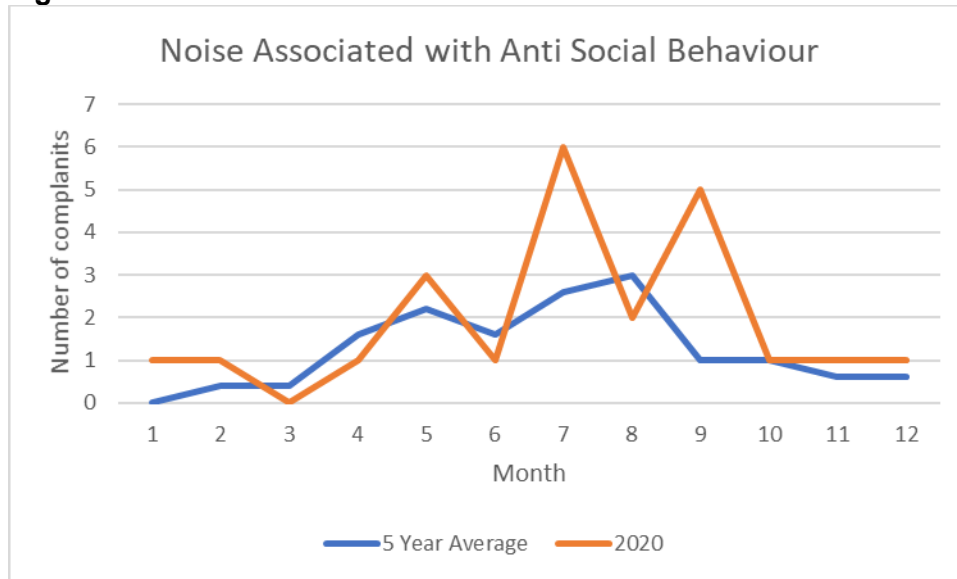
Figure 3 Animal Noise (e.g. barking dogs)


Noise associated with Antisocial behaviour also did not show statistical difference (Table 4) but a more erratic trend than in the 5-year average (Figure 4) although caution should be taken with small number of complaints made.

Table 4 Antisocial Behaviour

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec			
5 year average	0	0.4	0.4	1.6	2.2	1.6	2.6	3	1	1	0.6	0.6		t test	0.16
2020	1	1	0	1	3	1	6	2	5	1	1	1			

Figure 4 Antisocial Behaviour



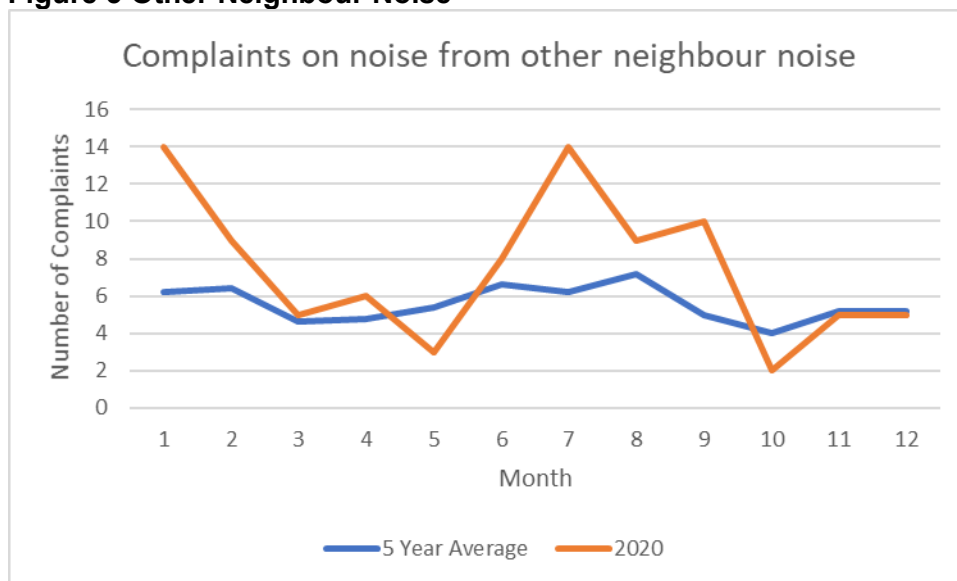
Other neighbourhood noise was close to significance with $t=0.07$ but it did not meet the 95% threshold required. (Table 5)

Table 5 Other Neighbour Noise

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec			
5 year average	6.2	6.4	4.6	4.8	5.4	6.6	6.2	7.2	5	4	5.2	5.2		t test	0.07
2020	14	9	5	6	3	8	14	9	10	2	5	5			

The month-by-month trend indicates that the summer months and into the start of autumn appear to have an increase (Figure 5)

Figure 5 Other Neighbour Noise

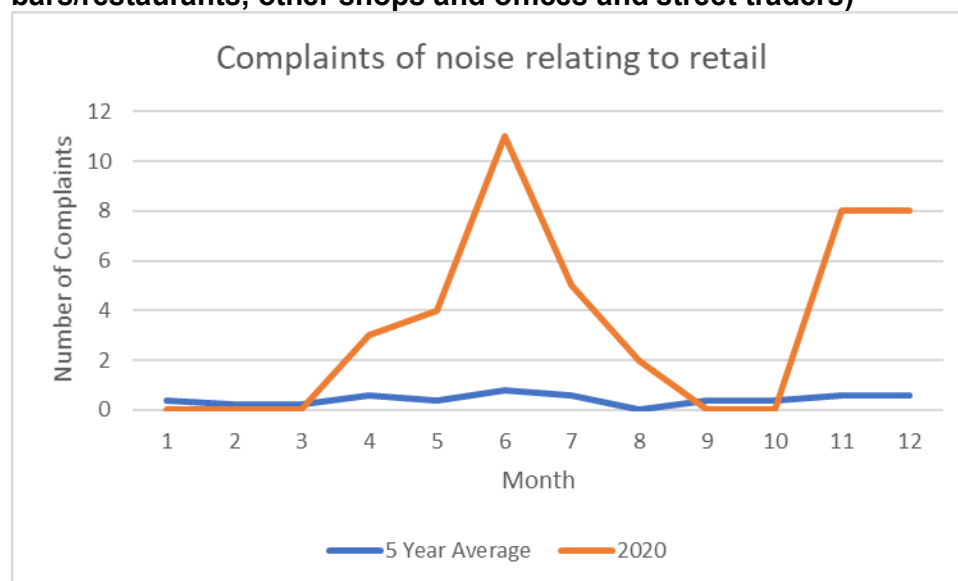


Noise associate with retail (merging filing stations/car washes, ice cream van chimes, hot food bars/restaurants, other shops and offices and street traders) however did show significance (table 6)

Table 6 Retail Related (merging filling stations/car washes, ice cream van chimes, hot food bars/restaurants, other shops and offices and street traders)

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec			
5 year average	0.4	0.2	0.2	0.6	0.4	0.8	0.6	0	0.4	0.4	0.6	0.6		t test	0.02
2020	0	0	0	3	4	11	5	2	0	0	8	8			

The month-by-month trend also reflects the changes throughout the year (Figure 6).

Figure 6 Retail Related (merging filling stations/car washes, ice cream van chimes, hot food bars/restaurants, other shops and offices and street traders)

Analysis was carried out on construction noise, industrial noise and agricultural noise with no significant difference found.

Discussion

Lockdown has a major impact on everyone's lives with many countries adopting unprecedented lockdowns.

This societal shift is thought to have impacts on many environmental issues including noise experienced by people that have been more confined to their homes throughout 2020 than they would have previously been. Initial findings from data collected in London local authorities during spring 2020 indicated a rise in noise complaints (Tong et al).

Noise complaints were examined in one local authority in Northern Ireland as a case study over the full calendar year of 2020 and compared the 5-year average. The results differ from those initial findings found by Tong et al., 2021 and from what had initially been expected. Overall, there was no statistical difference between the number of noise complaints made in 2020 compared to the 5 year average.

The only category showing statistical difference was "retail related" noise complaints. Retail was highly responsive to the pandemic. Essential retail such as food remained open and with everyone at home and no other retail open, essential retail experienced increased sales (Panzone et al. 2021). Restrictions and social distancing measure made changes to the capacity of premises and queues were often seen outside supermarkets, fast food takeaways and other food retailers. Other food

retailers diversified and adapted quickly to provide takeaway services that allowed them to continue to trade during the pandemic (FSA, 2021). As other retail opened, they too also had to adapt to social distancing measures and covid compliance measures. The results from the analysis of noise complaints show that there was an increase in noise complaints relating to retail that may have been a result in changes to trade and covid measures.

“Loud Music and Parties” and “Other Neighbour Noise” came close to but did not show statistical difference with the 95% confidence levels that are normally reported in analysis. This was not the expected outcome although the trend line did indicate some increase for a period of months during the pandemic. Further research would be needed to investigate the reasons into these results. There could be several reasons to explain these from a possible hypothesis that people were perhaps more considerate and took care not to disturb their neighbours, to the concept that people used lockdown to reset from a busy life. Perhaps being at home allowed people to resolve issues between themselves however as a counter argument perhaps people did not want to complain about their neighbours as they knew they were going to have to continue to live beside them. There can be lots of reasons why people do and do not complain.

Several categories, although not showing statistical significance either, may indicate possible trends that could be related to different stages of the pandemic response and restrictions in place at particular times. For example, animal noise (barking dogs) complaints seem to be reduced at times when more people were working from home and rose when more people were back at work and school. Perhaps dogs were more content with owners at home and barked when more owners were back at work and school in September 2020. However, it should be remembered that no statistical difference was shown in this category.

The case study has limitations. This was the experience of a single local authority and may not be representative of the experiences of others or across Northern Ireland and the UK. It has been reputedly (but not verified) that some local authorities have commented on marked increases in noise complaints including barking dogs. A larger study would capture noise complaint data more completely and remove any anomalies.

The benefit of a larger study would also be seen from larger numbers of complaints in each category increasing the accuracy of analysis. For the local authority in this case study some categories of noise had small numbers. However, the robustness of using data across many local authorities will rely on the consistency of how complaints are recorded so like is being compared with like across all the local authorities and across all categories of noise.

A more detailed analysis of the noise complaint data to smaller time frames i.e., reducing it from monthly to weekly, may show further insights and patterns however it must be mindful that some complainants delay the reporting of complaints hoping for resolutions while others will complain to authorities more quickly.

It could be argued that data should only have been analysed from 23rd March 2020 when the PM told everyone in the UK to stay at home, however concern on the new emergent virus from China started much earlier and changes started to happen before that without government needing to legislate.

Conclusion

The covid pandemic and national lockdown and restrictions had some impact on the numbers of certain types of complaints made to a single local authority as a case study. While expected increases in complaints of loud music and parties, barking dogs and noise associated with antisocial behaviour were not proven through statistical analysis, there was an increase in complaints of noise relating to retail. A wider study involving local authorities across Northern Ireland, the UK and across countries that experienced lockdown measure may reveal a more accurate picture of the impact of neighbourhood noise experienced during the covid pandemic.

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Experiences of Sanitary engineers in Slovenia during COVID-19 epidemic

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Introduction

Most of us have heard about epidemics and pandemics during our studies. At that time, we have also learned how to prevent and control outbreaks and epidemics of infectious diseases at various levels. Although the potential threat of a pandemic was always present in professional circles, almost no one in this part of the world seriously anticipated a pandemic of this magnitude. Although some of our colleagues have already been confronted with minor outbreaks or epidemics of infectious diseases during their professional lives, none of us has yet found ourselves in the situation that began in March 2020 and is still ongoing.

One of my constant working motives as a teacher is to pass on knowledge to future generations. And because of the situation we found ourselves in, I asked my colleagues (Sanitary engineers) who perform their duties in different professional fields and in different institutions to share their experiences with me and describe their work during the Covid 19 epidemic in Slovenia. 24 of them (see the list of names at the end of this paper) responded to my invitation. Their activities are presented below systematically according to the individual areas of work.

1 Public and environmental health

In this section you will find the activities of our colleagues employed at different departments of the National Institute of Public Health and the National Laboratory of Health, Environment and Food.

1.1 National Institute of Public Health

Colleagues from the Center for Infectious Diseases participated in:

- the establishment of epidemiological surveillance of severe respiratory infections requiring hospitalization within the coordination group;
- the preparation and updating of recommendations for various activities;
- preparing responses to technical questions, particularly in the areas of hand hygiene, waste management, treatment of deceased persons, cleaning/disinfection, handling of protective equipment, etc;
- preparation of television and radio reports in the field of hand hygiene, hygiene in the domestic environment and the use of protective masks.

Colleagues from the Center for Environmental health, have (in addition to the intensive study of technical and scientific literature in the field of hygiene on the subject of Covid-19) participated in various expert groups like:

- preparation of general hygiene recommendations (e.g. instructions on ventilation of rooms outside medical facilities at the time of spread of infection);
- developing specific hygiene recommendations (e.g., recommendations for registered athletes and sports professionals to conduct organized practices during an epidemic);
- development of instructions for the release of training measures;
- providing professional assistance in reopening schools and facilities for children with special needs;
- working with a number of government agencies (Ministry of Health, Ministry of Education, Science and Sports, Ministry of Infrastructure, etc.) and industry associations on specific hygiene recommendations;
- preparing responses to questions from various media, organizations, businesses and residents.

At the same time, they worked intensively with staff from other departments and professions (epidemiologists, hygienists, communication center staff, etc.) inside the National Institute of Public Health.

1.2 National Laboratory of Health, Environment and Food

Some (e.g. Department of Water, Food and items of general use) were on hold at the beginning of the epidemic due to the lock down (closure of swimming pools, hotels, schools, kindergartens, etc.) and resumed work in mid-April 2020. In the area of drinking water supply, alternative sampling points had to be agreed with the water supply operators to limit contact with people as much as possible. During the epidemic, staff had no specific duties, but at the height of the epidemic they answered questions about the possibility of transmission of the virus with drinking water and the maintenance of domestic water supply networks during facility closures and the handling of drinking water in domestic water supply networks prior to reopening. Appropriate instructions have been prepared in this regard. Procedures for disinfection of water supply networks of larger facilities (e.g. spa) and regular inspections of school kitchens, including swabs for surface cleanliness and food samples, were carried out before and after the opening of facilities after the lockdown was over.

Disinfection and pest control staff received several calls from representatives of various companies. Most of the calls concerned the implementation of so-called preventive disinfection (time, scope, reasonableness, cost) and the development of system instructions in case of infection. The mentioned units also received emergency orders in case of confirmed infections requiring immediate intervention. The heads of the units also had to take care of the health and safety of the staff. The nature of work changed during the epidemic, as regular disinfection of premises was no longer carried out as frequently, except in certain food processing plants and logistics.

2 Hospitals

Hospitals began to prepare intensively for COVID -19 patients as soon as the first confirmed cases of infection appeared, before the epidemic was officially declared in Slovenia. Thus, hospital hygienists led and / or actively participated in:

- reorganization of regular working procedures;
- setting up swab collection points for staff;
- the establishment of instructions or guidelines for the prevention of infections and transmissions of Covid-19;
- determining personal protective equipment (PPE) based on risk analysis;
- training employees to work in new conditions.

When hospitals began to admit the first patients with Covid-19, our colleagues:

- participated in planning the accommodation and treatment of these patients from the point of view of the correct use of PPE and the consistent implementation of isolation measures;
- controlled the correct or rational use of PPE, especially when this equipment was in short supply.

During this period, much time was spent in hospitals on additional cleaning and disinfection of rooms and equipment, including the use of modern technologies such as UVC lights. Hygienists were also an indispensable member of teams for training employees in nursing homes, to which hospitals sent their staff. Even after the end of the first wave of the epidemic, they were still extremely active in ensuring that strict measures are strictly followed in the implementation of regular work procedures. It is also worth mentioning that hygienists themselves from various hospitals actively collaborated in the planning and implementation of the preventive measures.

3 Other hygienically sensitive premises

This section lists the experiences of those who carry out their work as organizers of the nutrition and health hygiene regime in kindergartens, hygienist in care homes and hygienist in food premises.

3.1 Kindergartens

Most kindergarten children fell ill with various viral diseases as early as January and February 2020 (in some kindergartens the absenteeism rate was over 50%), after which the situation worsened until the epidemic was declared. When the first case of infection with the new coronavirus was registered in Slovenia, the organizers of the nutrition and health hygiene regime (as the heads of the working groups) had to, in a very short time:

- prepare an action plan for the case of virus outbreak in the kindergarten;
- put the developed plan into practice through specific education and training of the staff (kitchen, cleaning, laundry, kindergarten teachers);
- provide an adequate supply of food and cleaning products.

When kindergartens were ready to handle cases of the new coronavirus, a government decree closed them. This marked a new turning point, as it was necessary (the notification was given the day before the kindergartens were closed):

- to draw up an emergency plan for all the above-mentioned work groups for the needs of the on-call service and to inform the staff of any additional preventive measures (use of protective masks, disinfectants, the way to admit children to the kindergarten in the morning in case of emergency care, etc.);
- to adapt the menus and select suitable foodstuffs;
- maintain constant remote contact with all Kindergarten staff and keep them informed of all current matters.

In some kindergartens, they had to organize the necessary maintenance work during the closure (bleaching, sanding the parquet, repairing washing machines and kitchen machines, inspecting the playgrounds, etc.). They also constantly monitored the implementation of measures to prevent the occurrence of legionella.

The announced opening of the kindergartens was followed by:

- organization of general cleaning before the opening;
- preparation of work instructions after the opening
- additional education and training of the previously mentioned work groups.

The organizers of the nutrition and health hygiene regime from different Kindergartens cooperated at a professional level during this period, as they were in constant contact with each other.

3.2 Homes for the Elderly

In the early stages of the epidemic, hygienists passed on important information and warnings about the new virus to employees, followed later by:

- preparation of various work instructions;
- the provision of additional disinfectants;
- preparation and regular updating of the action plan for prevention and control of infections in accordance with instructions, recommendations, guidelines and requirements of various state institutions (Ministry of Health, Ministry of Labor, Family, Social Affairs and Equal Opportunities, National Institute of Public Health).

There was active collaboration with health centers, hospitals and the National Institute of public health. In collaboration with the nursing service and home care, the hygienists had to find the most appropriate solutions for the establishment of gray and red zones, which then had to be implemented, these included:

- consistent separation of clean and unclean pathways;
- organizing systematic cleaning and disinfection;

- drawing up instructions for carrying out the work process (transport routes, correct use of PPE, etc.);
- drawing up instructions for cleaning and disinfection during the epidemic, for the correct handling of contaminated linen, for food service, for handling packages from relatives to residents, for waste management, etc.

As in kindergartens, so in homes for the elderly, hygienists constantly paid attention to the implementation of measures to prevent the occurrence of legionella. This is particularly important in cases where individual units have been emptied for the purpose of establishing a gray and red zone, so that residents had to be moved to a temporary location, which required the preparation of all supporting documentation for a temporary location as well. The work of the hygienists also continues with the release of policies relating to permitted but limited visits by residents.

3.3 Food premises

In addition to regular job duties, food hygienists were required to perform certain other duties such as:

- daily monitoring of notices and instructions regarding additional preventive measures in food work issued by the National Institute of Public Health;
- transferring the requirements and recommendations into the company's internal instructions and coordinating them with the client's requests;
- drawing up concrete instructions "in steps from A to Z" on how to deal with an epidemic in specific situations;
- drawing up instructions for the release of individual measures;
- adjusting food offerings and coordinating with customers (simpler menus);
- locating and ordering appropriate PPE on the market (protective masks, gloves) and preparing instructions for their use.
- compiling recipes for the "domestic" preparation of disinfectants (at the time of greatest scarcity on the market) and instructions for their use;
- monitoring the implementation of the instructions in practice.

4 Municipal service

This section lists the experiences of colleagues who carry out their work as drinking water health control or waste service managers.

4.1 Drinking water supply companies

In this area, too, activities began several weeks before the epidemic was officially declared, with restrictions on access to water facilities by the unemployed or unauthorized. This meant that only those working directly in the drinking water supply area entered the water facilities. Restrictions were also placed on customers entering the premises. In the area of maintaining hygienic and technical conditions, work procedures were already strict. In addition to regular work duties, the person in charge also took care of this:

- instructing employees on the proper use of disinfectants, protective masks, observing movement restrictions;
- preparing instructions for visitors entering the facilities due to urgent work related to uninterrupted drinking water supply;
- scheduling new sampling points in the network rather than at the user's premises, as would otherwise be the case;
- ongoing communication with staff and enquiry as to how they are managing to implement the enacted measures;
- supporting management before and during the epidemic regarding risk assessment and the need to implement the measures recommended by the National Institute of Public Health in the workplace;
- constantly reminding employees of the importance of self-protection.

At the operational level, it was also necessary to provide for the additional procurement of hand sanitizers and work surfaces and protective masks, as well as to distribute the aforementioned resources and instructions on when and how to use each resource.

4.2 Waste management companies

In the area of municipal waste management, before issuing instructions from the National Institute of Public Health and the Ministry of Environment and Spatial Planning, it was necessary to actively start preparing preliminary instructions provided to households, as waste management companies have already received calls from customers who are or were allegedly infected with the new coronavirus. In the area of care of the deceased and use of PPE, instructions were very clear when the first deaths occurred. In the area of collection sites, it was necessary to establish a zone for the temporary storage of PPE used in the care of the deceased. The micro-site for the collection of PPE after the care of the deceased was located in the hazardous waste collection area, in a closed, locked container with limited access.

Regarding the protection of workers in all areas of the utility's operations, the following actions were taken immediately after the epidemic was declared and general measures were adopted to prevent the spread of infection:

- closure of the administration building and customer operations warehouse;
- closure of the collection point for customer operations;
- change of location of morning working hours for all sectors (each sector separately, outdoors)
- installation of disinfectants (on all doors, in all vehicles, etc.);
- disinfection of surfaces that are touched by several people several times a day (e.g. coffee machine, hooks, handrails on stairs, telephones, etc.).

Waste collection teams became fixed teams, with no ability to switch between vehicles, which was particularly stressful for workers and their supervisors because they could not get leave. If one of the team members became infected, the entire team had to be isolated. The frequency of waste collection did not decrease during the epidemic, in fact it increased for individual fractions. An increase in the quantities collected of individual types of municipal waste (mixed municipal waste and municipal packaging of all types) was noted, and an increase in PPE was also observed. Despite clear warnings and indications that gloves and protective masks of all types and shapes do not belong in the packaging, they have appeared there in isolated cases.

During the epidemic, individual activities were stopped where there was a greater possibility of contact with customers (e.g. collection of bulky waste and inventory of water meters). Upon receipt of the PPE, the person in charge conducted a demonstration of proper set-up and take-down with teams from all municipal services, explaining the purpose and the potential for infection. A few days later, the demonstration was repeated. Observation of the employees revealed that the instructions were clear and meaningful and that they followed them. The habits acquired in the work environment were also transferred by many to their private lives.

When the collection center was opened to all customers, an extraordinary increase in the delivery of various types of bulky waste and electrical and electronic equipment was noted, as well as an increase in the delivery of green waste and organic waste. Direct assistance to the customers in unloading the vehicles was not allowed, but the constant presence of the person guiding the customers in sorting was ensured; thus, the time of presence of each customer in the collection center was reduced.

5 Health and safety at work

Companies advising on occupational health and safety have been monitoring the situation daily since the first reports of an outbreak in China, as the virus is closely linked to occupational health and safety as a new risk factor. In the early stages, it was not entirely clear what the operational role of all those working in this field should be. Despite the measures taken to prevent the spread of Covid-19, certain tasks also had to be carried out in the field.

After the epidemic was declared, employers who wanted to work from home turned en masse to companies offering advisory and occupational health and safety services. In such situations, employers were mainly advised on how to design the home working environment to be as safe as possible, despite the awareness that such a working environment was likely to be deficient in many respects compared to the employer's workplace, and that there was no time to make adjustments.

Subsequently, in most cases, employers were advised on how to design the work environment to which workers would return (organizing work with safety distance in mind). During occupational health and safety training, particular emphasis was placed on infection prevention topics. Colleagues working in this area are certainly at an advantage here, as they are well acquainted with this content, having a health-related job profile.

One of the main tasks was the preparation of audits for risk assessment. The risk posed by the new coronavirus was assessed and measures were taken to minimize the risk of transmission among workers. They were cooperating with occupational medicine practitioners on these issues and would like this way of working to continue after the end of the epidemic.

In a slightly different situation were those colleagues who were involved in providing appropriate training to employees in the workplace. Their workflows basically did not change in the cases where they had already switched to digital platforms, even though they had to do the work remotely. Only in the case of oral training (on-the-job) did some problems arise. Fast and efficient on-the-job training was even more important when, due to labor shortages, employees from other workplaces entered the production processes.

6 Consultancy and services in the field of hygiene of facilities and personnel

This area includes the activities of consultation, the provision of resources for the implementation of hygiene of facilities and personnel, and the performance of various tests and measurements.

Again, some activities started before the first confirmed cases of new coronavirus infection in Slovenia. In a short time, many educational activities were carried out in schools and kindergartens. When stricter hygiene measures were already introduced, there was a lack of knowledge in this area among the participants in the training courses or pronounced ignorance. Until the outbreak of the epidemic, many did not pay attention to the technique and timing of hand washing, the principle of not touching objects and the face, the choice of disinfectant, etc. When public facilities reopened, the interest in consultations in the field of cleaning and disinfection of premises (how, with what and with what procedures to start cleaning the premises before opening) increased enormously.

Colleagues in this field, in addition to education and training:

- developed hygiene guidelines in the field of personal and property hygiene;
- advised on the selection and use of disinfectants;
- advised on and/or plan cleaning and disinfection procedures;
- tested the effectiveness of face masks and associated PPE for safe working on patients;
- tested the effectiveness of disinfection barriers, tents and tunnels;
- participated in the development of mathematical models for the spread of virus through ventilation ducts and air conditioning systems;
- provided expert opinion on the suitability of facilities for working with infected patients in some hospitals.

In addition to providing technical support to partners, some of them also need to provide technical support to employees in their own companies in order to protect their core business (production, logistics). Only in this way were these companies still able to supply their partners with basic hygiene products and the most important products in this epidemic - hand and surface disinfectants.

7 Official control

This section presents the experiences of those who carry out their work as inspectors in inter-municipal inspectorates or Health Inspectorate of the Republic of Slovenia.

7.1 Municipal level

The inter-municipal supervisory authority performed its duties continuously during the epidemic. In accordance with the issued regulation on temporary general prohibition of movement and gathering of persons in public places, areas and cities of the Republic of Slovenia, public areas were controlled. During this period, the Inter-municipal Inspectorate processed applications for which it is responsible and carried out regular monthly inspections in the field of municipal waste management. Individual cases were handed over to the Health Inspectorate of the Republic of Slovenia. In this context, the colleagues were involved in the work both operationally on site and at the organizational and coordination level as members of the crisis team.

7.2 National level

The workload on Health Inspectorate of the Republic of Slovenia has increased significantly due to epidemic-related administrative offenses. The police also handed over many cases to the Inspectorate, so that health inspectors had to stop all non-urgent activities. During the epidemic, and even after it was officially lifted, health inspectors have been:

- intensively following the changes in legislation and issued orders, which occurred daily or even several times a day;
- coordinating the interpretation of the issued instructions (interpretation of the instructions in a form binding on the obligated person);
- monitored compliance with the prescribed prohibitions and restrictions on the spot (under both the temporary general prohibition order on moving and gathering people and the order on Temporary Prohibition offering and selling goods and services to consumers);
- if necessary, ordered a ban on carrying out the prohibited activity;
- in case of applications or issued decisions, supervise the implementation of the ordered quarantine and isolation.

8 Conclusion

During the epidemic, faculty staff provided professional support to all colleagues in the field who contacted us. Since the epidemic was declared in Slovenia, we continue to closely follow the development of events at home and abroad, so that we can best prepare the next generations of for such challenges. According to the collected answers, the efficiency of Slovenian professionals during this pandemic is reflected, among other things, in the extraordinary ability to cooperate with others, which can be seen as one of the connecting threads of this report; it is about cooperation within the profession as well as participation in various working groups with members of other professions. Finally, I would like to express my personal appreciation and deep respect to all my colleagues who underpin daily substantiate our profession in practice. I am honoured to be part of this profession, albeit in the role of educating future generations. It is because of the warm and self-sacrificing colleagues in practice who continually contribute to the development of the profession also as working mentors to interns and trainees that the work of a teacher such as myself can be truly successful.

Experiences and thoughts for this paper were shared by: ⁸

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Liverpool has long claimed to be the home of Public and Environmental Health, with the appointment of the first Environmental Health Practitioner (Thomas Fresh in 1844) and the first Medical Officer for Health (Dr. Duncan in 1847). This tradition of being at the forefront of Public and Environmental Health continues today within the Public Health Institute (PHI) of Liverpool John Moores University, which looks to develop the next generation of Environmental and Public Health Practitioners, through its BSc and MSc programmes.

As part of the BSc programmes, students undertake a dissertation of approximately 10,000 words and below are the abstracts from four of this year's graduates, who focused their research on some of the various impacts of COVID-19. For further information about this research, the work of the PHI or the programmes it offers.

A Quantitative Study to Explore the Experience of Employees Using PPE during the COVID-19 Pandemic (March-December 2020)

By Adelina Blanaru

This research study focused on exploring employees' experience with the use of PPE during the COVID-19 pandemic, from March to December 2020. Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus called SARS-CoV-2, the first incidence of this new virus being recorded on 31 December 2019, following a report of a cluster of cases of 'viral pneumonia' in Wuhan, People's Republic of China (WHO, 2020).

The literature review highlighted in the research provides further information about previous studies that have explored the issue surrounding workers' experience, attitude and awareness with the use of PPE. Although negative effects, such as anxiety or depression have been associated with the use of PPE, additional factors have also been found to have had an influence on these outcomes. Furthermore, positive impacts such as significantly reducing the infection rates of coronavirus cases have also been linked to the use of PPE.

The quantitative methodology selected by the researcher included an online survey, which was completed by 78 workers that have been using Personal Protective Equipment (PPE), since the start of the pandemic. The participants were recruited on social media (Twitter) and directly through organisations where it was known that PPE was used. The researcher analysed the data by using Excel for descriptive statistics, which are presented in bar and pie charts and SPSS for statistical analysis, which are presented in tables and include the Chi-Squared tests performed.

The results showed that the vast majority of participants (90%) have been using additional PPE since the pandemic started. Generally, participants have had a positive attitude towards the use of PPE, but they have expressed that there are challenges when wearing such equipment, for example the level of comfort. Those participants that were using PPE prior to the COVID-19 pandemic were more

likely to agree that they knew PPE was important, although 75% of all respondents said they were prepared to be late in order to ensure their PPE fitted correctly. Respondents felt whilst there was both adequate provision of PPE (86% agreed) and training (75% agreed) the majority (88%) believed companies could do more to spread the awareness of the importance of wearing PPE.

PE has been an important factor in the COVID-19 pandemic, and it has been demonstrated that it can successfully reduce infection rates. It is clear that PPE is valued by the majority of employees but not all and this presents a significant risk to the employee, their work colleagues and the wider community as a whole. As established PPE can have both negative and positive impacts, therefore it is important to understand what factors influence workers' experience, as the information can be used to make improvements and provide better solutions in the future. In line with previous research, it is recommended that companies should do more in regard to spreading awareness about the use of PPE in the workplace, whilst further research can be developed and enhancements could also be made in relation to the equipment itself. It is believed that the findings presented in this study and the literature reviewed can be a starting point in looking at better ways to improve users' experience.

How have pandemics exacerbated inequalities, stigmatised certain groups, and prompted social change historically?

By Darcey Brown

This literature review presents a historical analysis of pandemics: The Black Death, The 'Spanish Flu' and COVID-19 are explored to identify patterns of discrimination linked to marginalised minority groups. This dissertation aims to investigate how inequalities experienced by minority groups were exacerbated by pandemics selected. It hopes to determine the impact on social change as measured by a) shifts in attitudes and behaviour in society and b) changes in measures imposed by governmental bodies.

Learning from history is important in public health. It is hoped that such learning is used to inform policies that might protect populations that are, because of their position in society more vulnerable during a pandemic. An analysis of the historical literature was chosen in favour of an empirical study as it allowed a comprehensive review of the experiences of minority groups across history and into the present day - providing a detailed review of: The Black Death and the massacres, Anti-Semitism and scapegoating Jewish communities faced at the time; racist ideology and segregation policies to understand how these pre-existing inequalities were exacerbated because of The 'Spanish Flu' and how unequal consequences of the COVID-19 pandemic have been experienced by ethnic minorities.

A systematic review of the literature was undertaken (using electronic databases). Researching in a comprehensive and systematic manner ensured that literature found was appropriate and as unbiased as possible. Papers were critiqued against inclusion criteria as detailed further within the review. This was to ensure that reliable and credible literature was used. Themes arising from the review were analysed.

The review of the literature found that history has repeated itself. COVID-19, like previous pandemics, has exacerbated health inequalities and stigma among ethnic minority group.

The review found extensive patterns of stigma and discrimination across all groups analysed. Stigma was found to act as a rationale for racist, discriminatory, and violent behaviour towards marginalised groups. It was also a recurrent finding that, pre-existing inequalities (e.g., racial discrimination and poverty) were exacerbated during the pandemics studied. These issues went on to significantly disadvantage minority groups through higher rates of morbidity and mortality. When analysing social change, the review found little evidence of change in The Black Death or The 'Spanish Flu' pandemic. However, there were some indications of societal awakening and increased support of Black Lives Matter groups during COVID-19.

Recommendations emerging from the dissertation include the need to address inequalities and stigma, by giving the necessary support and aid to relevant communities. This would significantly benefit both minority groups and society as a whole.

A quantitative study on the attitudes, knowledge and experiences of university students on the consumption of processed foods during covid-19 lockdown.

By Daniel McElhinney

The exponential growth of COVID-19 cases has forced governments to impose lockdowns with restrictions concerning all aspects of life. These restrictions may compromise maintaining a healthy and varied diet, as they have looked to limited social contact and the movement of people. In addition, this pandemic-related lockdown is identified as an incredibly stressful event, generating an increase in levels of anxiety, fear and panic. These stressful situations can alter both shopping and eating habits, with the result being a potential increase in the risk of overweight and obesity. This could be especially relevant for university students who are already known to participate in risky eating behaviours, such as the increased consumption of high energy and processed foods.

This research aims to explore and assess the consumption of processed foods during the COVID-19 lockdown in university students studying within the UK. This empirical research study used a self-selection sampling, quantitative approach to investigate university students' attitudes, knowledge, and experiences on consuming processed foods during COVID-19 lockdown.

A total of 56 participants completed the questionnaire. The results show that most university students (88%) agree that processed food is less healthy than fresh food and that 59% believe they eat too much processed food. However, the most significant barrier university students faced to eating less processed foods is the cost of fresh food and the vast majority (90%) feel that processed food is more convenient. Certainly, lockdown appeared to make students more aware of the food they ate (with 70% agreeing with this) and 63% saying they cooked more food from scratch.

Whilst undouble there were significant negative impacts in imposing a national lockdown, it appears that it did allow for students to reflect and positively change their behaviour in relation to processed foods. Students were aware of issued around processed foods but until lockdown, seemed not to be able or willing to avoid the consumption of them. It remains to be seen if these changes are permanent as lockdown ends but it provides an opportunity for both Government and Universities

To promote unprocessed or minimally processed foods to reduce the risk of chronic non-communicable diseases associated with processed foods.

The unequal health impact of covid-19 on bame groups in the uk.

By Madeline Penning

The COVID 19 pandemic has been condemned as 'the worst challenge for a century for international health and financial systems' (Singer, 2020). The impact of Coronavirus Disease worldwide has brought mainstream attention to the underlying issue of health inequality.

By reviewing the existing literature on existing health inequalities, the wider determinants of health and the current climate of COVID-19 in the UK, this research aims review and discuss the unequal health impact that the COVID-19 pandemic has had on MAME groups in the UK.

Research has shown that Black, Asian and minority ethnic (BAME) groups in the UK have been impacted the hardest by COVID-19, suffering higher morbidity and mortality rates as well as increased financial hardship. For example, BAME groups experienced a higher rate of ICU admissions than would be expected from the local population (34% of ICU admissions were patients of a BAME group,

despite BAME groups representing only 14% of the population). In addition, despite BAME groups being on average younger than the general population, the COVID-19 pandemic saw comparable death rates between BAME and White British groups. Such disparity as a result of racial inequality is heavily interlinked with lower socioeconomic status, which is more common among BAME communities in the UK. BAME groups are more likely to be represented in high-risk occupations and in particular Bangladeshi and Pakistani ethnic groups are, as a whole, the most socially deprived and excluded minority groups.

Through the lens of COVID-19, socioeconomic and ethnic health disparity has been magnified to a greater audience than ever before. This is a significant opportunity for public health researchers and proponents to highlight the need for prioritizing health equity in all areas of policy and intervention. The aim of this research is to understand the ethnic disparity within COVID-19 health outcome in the UK from a public health perspective and provide a grounding of data within policy and intervention strategy.

COVID has changed the shape of EH activities in Fiji now and in the future.

By Vakaruru Cavuilati (vakaruru.cavuilati@health.gov.fj)

Fiji Institute of Environmental Health (FIEH)

Fiji an island nation in South Pacific Fiji has recorded 401 cases of Covid 19 with 4 deaths and 164 recoveries (<https://www.worldometers.info/coronavirus/country/fiji/>). There are two main islands in Fiji. The island of Viti Levu is where the cases are arising from mainly from the capital city of Suva and its suburbs, followed by Nadi and Lautoka on the Western side of the island. The other maritime islands have zero cases in 2021. The Fijian Environmental Health Practitioners (EHO's) have been at the forefront of Covid activities from contact tracing, surveillance in the communities, disinfection of facilities, supervision of the quarantine and isolation facilities. More priority & attention is given to Covid Preparedness in terms of Human Resources (HR) e.g. Screening, Monitoring of Home Quarantine.

Movements from Viti Levu to the other maritime islands have been restricted to cargo only. Our environmental health officers have been at the forefront of disinfecting vehicles that travel across to the maritime islands carrying freight. They are supported by other stakeholders such as the Fiji Maritime & Safety Authority (FIMSA) and the security forces (Police & Military). This has fostered cooperation and coordination with other departments more than ever before. This can be maintained in our other interventions e.g. the Biosecurity Authority of Fiji (BAF) and Agriculture assisting in containing leptospirosis in most parts of Fiji. Most of the interisland ferries travel during odd hours of the day and our Environmental Health Officers are there during these times to carry out their duties. More fatigue thus staffs have to work on shifts for some to have rest, but Office has to be manned every weekday.

In the Western Division of Fiji, the EHO's at the border have a diverse role to play such as supervising check-in of guests and ensure strict infection prevention and control protocols are followed (hands to be sanitized before entering the lounge, social distancing to be followed, PPE, check for all staffs in receiving area) to ensure that all quarantined guests special meal requirements i.e. diabetic, hypertensive are recorded by the Food & Beverage Department of the facility during check-in. Health quarantine officer to consult Dietitian for advice on meal plans. We do symptomatic screening of quarantined persons at the facility in the absence of a Medical Officer and consult with Medical Officer on any symptomatic persons. Conducting rapid training/refresher training on Infection and prevention process, waste management and proper use of personal protective equipment's (PPE's) to frontline hotel workers and military personnel every two weeks. (Ministry of Health, 2020)

Covid-19 has changed the landscape of urban public health. Rural settings were custodian of Water and Sanitation (WASH) indicators. The pandemic has redefined the dire need for WASH in an urban jungle. Simply having WASH infrastructure does not guarantee hygiene promoting behaviour. Hand hygiene itself is a single vaccine for many diseases and once the pandemic is gone we expect hand hygiene to continue. For example, in Australia, the influenza cases were all low last year. Even there was a decline in deaths. Improvement in hygiene promoting behaviour. Hand hygiene itself is a single vaccine for many diseases and once the pandemic is gone we expect hand hygiene to continue. For example, in Australia, the influenza cases were all low last year. Even there was a decline in deaths. Olsen, S. J., et al. (2020). In Fiji, we have seen that during the Covid outbreaks there is a significant decline in typhoid fever. This can be attributed to the extensive awareness now be given more attention. The indicator and event-based surveillance. For example, if in Wuhan measures would have been taken based on the unusual occurrence of cases, this pandemic would have been avoided. Instead, they waited for lab confirmation.

The EHO's also carry out mintoring of yachts that have been allowed entry into Fiji through the "Blue Lane Initiative " (BLI). They are part of the team that carry out screening and swabbing of yachties

and ensure that Covid Safe measures are followed and when they have negative tests, they are given a cruising permit to travel around Fiji. In a way, the EHO's are contributing to the economic recovery of Fiji.

The Covid era has certainly changed the dynamics of the way we do business as Environmental Health Officers especially here in Fiji. Once we open our borders and invite tourists to our shores (our main foreign exchange earner) EHO's as well as other health counterparts must be always vigilant and alert at all times. Whilst, we are doing this we are mindful of the fact that we have climate-sensitive diseases that are endemic in our country that we must be content with.

Reference

1. Adapted from <https://www.worldometers.info/coronavirus/country/fiji/>
2. Ministry of Health & Medical Services, Fiji, (2020). "Standard Operating Procedure, Covid 19", Fiji.
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Annex



Photo 1. EHO's manning the quarantine station in Nadi, Western Fiji.



Photo 2. EHO's with other stakeholders at the interisland ferry jetty in Savusavu, Northern part of Fiji, which is still Covid contained. Here, they wait for the ferry to arrive and they disinfect the vehicles, no one boards or disembark the ferry.



Photo 3-6. Awareness on Safe Covid measures in supermarkets in Nadi.

Covid-19 promoting partnerships

By Edgar Chilanzi Mulwanda

Environmental Health Practitioner – Zambia Institute of Environmental Health(ZIEH) Member.

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Picture 1 is showing Author presenting to partners during the launch of the Safe Back to School Programme.



Picture 2 is showing Hand Washing Facility designed for congregate settings like schools.



Picture 3 Showing a banner for the Safe Back to School Programme

2020 is a year most people would not want to refer to as it was characterized by the lock downs across the world. It is a year when Environmental Health Practitioners worked hard and were more recognized. In Zambia, we had similar situation like in many more countries across the world where environmental health staff had to put in extra work. That is still the case even now as we are still dealing with the covid-19 pandemic.

Resources for the control and prevention of Covid-19 have always not been enough, however, work had to be done and this called for consented efforts amongst the partners in putting the resources together.

Schools in Zambia closed for over six (6) months and when time for opening came, there was need to ensure that the learners were safe in the school environment. However, there was limited resources from Authorities. Working for Lusaka City Council as Director for Public Health, we had to fast come up with ideas on how to ensure that the resources were available. We did engage our key stakeholders and came up with the Safe Back to School campaign which was under the bigger umbrella of the Green Schools Partnership Programme (GSPP). The Green Schools Partnership Programme (GSPP) is an initiative which is coordinated by the Lusaka City Council with the Ministry of General Education and the Ministry of Health being the main implementing partners under the umbrella of the Lusaka Water Security Initiative (LuWSi). The programme main sponsor in the initial stages has been GIZ.

The Safe Back to School campaign saw the mobilization of resources for Covid-19 prevention and control for schools including Communal Hand Washing Facilities for hand hygiene, adapted for congregate settings such as school, disinfecting equipment, disinfectants, masks, protective clothing, Information, Education and Communication (IEC) material.

The Safe Back to School campaign was well structure allowing for scalability. This saw more support from partners to include more schools as beneficiaries. The campaign provided a platform for Environmental Health Practitioners to work with different other professional to showcase their planning, resource mobilization,

coordinating and negotiation skills. As a Local Authority, Lusaka City Council has benefitted from the partnership as it has been able to reach out to many schools with materials and activities which could not be done had it only sat back and depended on its budget.

5 Checks for Safe Food Delivery from the NEHA Food Safety Program Committee



Throughout the COVID-19 pandemic, retail food establishments have experienced increased demand for food delivery services as consumers seek to reduce person-to-person interactions. This shift in consumer expectations and demand has highlighted the need for food safety education among food delivery persons. In response, the National Environmental Health Association (NEHA) developed a

[5 Checks for Safe Food Delivery](https://bit.ly/5ChecksforSafeFoodDelivery) infographic to illustrate best practices and recommendations for keeping food safe during

delivery. The infographic was designed by the NEHA Food Safety Program Committee that includes members from regulatory and industry sectors.

To develop the five checks, the Committee sought feedback and recommendations from third-party delivery companies, partner associations, and members of the Retail Food Safety Advisory Group of the [Retail Food Safety Regulatory Association Collaborative](#). The content was directly informed by the [Guidance Document for Direct-to-Consumer and Third-Party Delivery Service Food Delivery](#) that was prepared by the Direct to Consumer Delivery Committee of the Conference for Food Protection.

The checks, or food safety factors that delivery workers should be aware of during delivery, include guidance for the delivery worker, the vehicles used for delivery, the food and beverage items being delivered, the time it takes to deliver the food, the temperature of the food items, and planning for potential accidents or damage to food items. Specific recommendations include keeping the inside of the delivery vehicle clean, keeping food packaging seals intact, and using insulated bags or coolers to keep hot food hot and cold food cold. The infographic provides information on safe food handling for delivery persons who might not have prior experience in food service. This information was compiled into a brief, easy-to-understand infographic, with text and images describing each recommendation. The images in the infographic provide increased understanding of the information for multilingual users. Each of the five checks also contains a sentence explaining why these actions are important to protect consumer health. The infographic can be printed out for flyers, viewed on a smartphone or tablet, or integrated with existing third-party delivery mobile applications that are used to communicate with delivery workers.

The 5 Checks for Safe Food Delivery infographic is a tool that can assist in filling critical educational gaps with rapidly emerging consumer trends. By providing clear, simple recommendations, NEHA aims to help retail food establishments and third-party delivery companies take action to better protect the health and safety of themselves and their customers.

Written by:

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National Environmental Health Association

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State of Michigan's COVID-19 Workplace Safety Ambassador Program Focuses on Education First

Collaboration Between NSF International and Michigan's Workplace Safety Agency Helps Employers Protect Employees and Customers

Walk in the door at Applied Fitness Solutions in Plymouth, Mich., USA, and you'll see a sticker declaring the business is a proud participant in the State of Michigan's [COVID-19 Workplace Safety Ambassador Program](#).

The program is a collaborative, educational service from Michigan's Occupational Safety and Health Administration (OSHA) agency, [MIOSHA](#), and global public health organization [NSF International](#). The sticker informs visitors that the business has gone above and beyond what's required to minimize COVID-19 risk for employees and customers.

"As a business owner, I'm looking for ways to reassure my clients that this is a safe space – or at least as safe as we can possibly make it during a pandemic," said Mike Stack, founder and owner of [Applied Fitness Solutions](#). The sticker is useful because it's not always easy to see all the coronavirus controls and preventive measures a business puts in place to minimize risk.


Guidance and Education for Small Businesses

To deliver the program, [MIOSHA collaborated with NSF](#). Since November 2020, NSF's ambassadors have visited more than 4,000 Michigan businesses, assessing compliance with the state's COVID-19 safety requirements and providing guidance and education when necessary.

"We've found businesses around the world are drowning in COVID-19 guidelines, but what they really need is help operationalizing those guidelines and applying them to their specific locations," said Paul Medeiros, Managing Director of Consulting and Technical Services for NSF's North American operations. "With the Ambassador program, MIOSHA is taking an innovative approach to serve an unmet need among Michigan businesses."

Educate Before You Regulate

With a focus on restaurants, retail, childcare and fitness centers, this educate-before-you-regulate approach is aimed at helping business succeed during the pandemic by protecting workers and customers alike.



Employers who might normally be hesitant to invite workplace safety regulators into their businesses are embracing the MIOSHA Ambassador program.

Employers who might normally be hesitant to invite workplace safety regulators into their businesses are embracing the MIOSHA Ambassador program. The key: NSF's ambassadors have no power to issue fines or citations. Education is their only priority. They are simply helping businesses take the appropriate steps to comply with state COVID-19 requirements and operate safely during a pandemic.

When NSF's role in the program was [announced in November 2020](#), Applied Fitness Solutions was the first Michigan business to [request an ambassador visit](#) – not because they needed help developing a COVID-19 control plan, but because they wanted an independent review of their existing plan and suggestions for how they might improve it.

"The ambassador visit was extremely reassuring to me as a business owner, because I think we all want to keep our customers as safe as possible," Stack said. "Having someone like NSF and MIOSHA put a stamp of approval on our COVID-19 playbook was very reassuring."

COVID-19 Pandemic Playbook

At Applied Fitness Solutions, COVID-19 safety starts with mask use. All employees and members are required to wear masks while in the building. Instead of group fitness classes, members can drop in at any time to work out with a trainer. This helps reduce capacity and makes physical distancing easier. The business increased airflow and added MERV 13 air filters to HVAC systems. Everyone pitches in to sanitize equipment after each use and the facility is deep cleaned and sanitized every day.

“We even purchased touch-free digital thermometers for each location to make it easy to take your temperature when you first come in the door,” Stack said.

Applied Fitness Solutions seems to have it all figured out, but Stack is quick to note they had plenty of help getting to where they are today. In spring 2020, Stack reached out to friends and colleagues in the public health field to find out exactly what he would need to do to reopen and stay open safely with minimal risk to employees and clients. He studied CDC and WHO guidelines and talked to local public health experts. Additionally, as a board member for the [Michigan Fitness Club Association](#), Stack was able to consult with other gym owners in the state. With all this help, he was able to develop a 50-page pandemic operations playbook.

“I was fortunate to have the relationships and resources to develop this playbook,” Stack said. “But not every business has the time and resources to do this.”

“Having someone like NSF and MIOSHA put a stamp of approval on our playbook was very reassuring.”

He recommends the MIOSHA Ambassador program to any business owner who needs help applying the COVID-19 guidelines to their workplace.

Learn more about NSF’s [customized COVID-19 assessment and guidance services](#) for states, provinces, counties and municipalities.

[FURTHER PHOTOS AVAILABLE AT <https://photos.app.goo.gl/kzMjkgQY4qNhDrQn9>]



“I believe that each individual should aim to use his/her expertise to make a difference in the lives of many”

By Landi Moses

Landi Moses is a Namibian Environmental Health Practitioner (EHP) who joined the fight against the novel coronavirus (Covid-19) as a frontline worker on her first day on the job.

Covid-19 reached Namibia in March 2020, a month later Landi accepted a position with the Ministry of Health and Social Service and there was no time for comprehensive induction into the office as she among others were needed to ensure that Namibia won the battle against the virus.

“When the first cases of COVID-19 were found in the country, a lockdown was initiated in two regions; Khomas and Erongo Regions. Movement into and out of these regions was restricted. Therefore, lockdown checkpoints were set-up around these regions,” she said.

In the early months of the job, she worked at the lockdown checkpoint east of the capital city, Windhoek. Landi's daily operations at the checkpoint include screening, record taking, health education and reporting. Additionally, using a surveillance form, we captured the details of the travellers. This included their full names, vehicle registration numbers, contact details, residential addresses, Identity numbers and the temperature presented on the thermo-gun, for all those who enter or exit the region. In the case of trucks, Landi and her team further record their place of departure and destination and request for the details of the companies (name, address, contact details).

“I didn't imagine I would be working as a frontline worker in the midst of a global pandemic so early in my career. I do however feel a great sense of purpose and pride knowing that I'm working in controlling and reducing the spread of an infectious disease,” said Landi. Jokingly adding, “A truck driver that I screened at the checkpoint once said ‘We're not essential workers, we are the suicide squad.’ Although this statement was followed by laughter, there is some truth in it.”

Landi lives in the capital city, Windhoek and works at the Hosea Kutako International Airport, which is, located approximately 40 KM east of the City Centre, about an hours' drive. The lockdown checkpoint was located a further 17km from the airport. Fortunately, the Ministry has provided us with vehicles, which enables us to get around. Team members that have driving authorization are responsible for the pick-up of other colleagues.

When the lockdown of the Khomas region was first initiated, mandatory quarantine of all truck drivers arriving into the region was the responsibility of the government. However, a few weeks later, the requirements changed and the truck companies had to incur those costs. All trucking companies that still wished to import and export goods to and from neighbouring countries had to make provision for the quarantine of their drivers. This could be either by using facilities at their company depots, or using guesthouses etc.

According to Landi, “When this rule came into play, all trucking companies communicated with the district office on their plans. One of my first tasks in the first week of my work was inspection of quarantine facilities that these companies have set-up for the quarantine of their drivers. We inspected and gave recommendations to company owners on how they can best improve these facilities.”

Landi further explains that when a truck comes through the checkpoint, it was crucial to identify those that are coming from beyond Namibian borders. Once screening was finished, Landi's team communicated to the district office to notify them of the truck details, the company and where the drivers would be quarantined. Many of these trucks belong to companies whose facilities were inspected before, and therefore apart from recording the information, not much more is done.

“However, if a new truck belonging to a company that we have not encountered before comes to the checkpoint, we port health officials communicate with the company managers to enquire about quarantine facilities. Once information is collected, we communicate to the district office and an inspection and follow-up will be made,” she said. Screening one individual at the checkpoint took approximately 3-5 minutes due to record taking and on a busy day, Landi and her team screened around 150 individuals.

Landi’s other duty station includes the airport as a Port Health Official. According to the EHP, work at the airport was relatively faster to screen crew and passengers simply because all passengers fill in a disease surveillance form prior to getting off the plane, which they present to us (port health officials) at the screening point. “Using thermal imaging cameras, we take the temperatures, and the passengers then proceed to the immigration section,” she explained. Adding, “Health Education is also a continuous task at the checkpoints. We give education on COVID-19 and additionally hand out information pamphlets on the signs and symptoms, prevention measures and Hand-washing.”

Frontline workers are at a high risk of contracting the virus, hence why their safety is of utmost importance. Asked how Landi keeps herself safe, she said, “There is a demarcated line which individuals being screened are required to stand behind, reducing their distance from us. Temporary hand washing facilities have also been set-up at the site. Before individuals proceed to screening, they are required to wash their hands thoroughly and they are provided with hand sanitizer. We also keep safe by ensuring we wash our hands often, sanitizing them and disinfecting our workspaces.”

The team of EHPs are provided with personal protective clothing and equipment and “ I always ensure I have a mask on, and gloves when doing temperature screens as a thermos-gun requires one to point 3-5 cm from the forehead.”

Namibia has come a long way since March 2020 and the government has imposed several restrictions to curb the spread of the virus. The public mood has been conflicted, with some supporting drastic measures such as the lockdown, while others had concerns about the economic implications. However, according to Landi, it has been a moment of pride to see her fellow country people taking the necessary precautions and adhering to the rules and regulations set by the government.

Landi Moses,
an EHP from Namibia
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Participate, Get Vaccinate, and Live! Covid Vaccines... Why the Time is Now!

By Priscilla Oliver, Ph.D.

Immediate Past President, National Environmental Health Association (NEHA) and Director, Physician and Undergraduate Student Educational (PAUSE) Partnerships Foundation, Inc. and Donnie W. Watson, Ph.D., Program Director for the Thelma McMillen Center for Alcohol and Drug Treatment at Torrance Memorial Medical Center, Torrance, CA.

Growing up, the first experience generally with civics was with being a Brownie/Girl Scout and taking a related class in school. We were taught in Civics to care for and respect the government and the environment. These were growth experiences that have continued throughout life. There were important values to our culture. Vaccines were required for students to enter school. Early in life, it was a big community effort for us to take the polio vaccine in a sugar cube at the neighbourhood sites. All of us got the vaccine. No questions were asked. People were taught to take care of themselves and the environment. There were no objections or protests of these efforts.

The U.S. Centers for Disease Control (CDC) officials have reported that people of colour have been disproportionately and adversely affected by the Covid 19 Virus. (Treisman, R, NPR 2021). The disparities with people of colour, Blacks and Hispanics having the Covid-19 virus have created alarm for the public health of the world.

As a group, African Americans in the U.S. have historically been a resilient group dealing with many hardships and atrocities that were imposed upon us. The most obvious is the remnants of being enslaved people. Along this journey we experienced racism and bigotry that still exists today.

Part of this history included the infamous "Tuskegee Study" where African American men were left untreated after contracting syphilis "to see how it would impact them". Because of these experiences (and others), African Americans sometimes have been distrusting of medical science.



The distrust of medical science has contributed to poor health outcomes when dealing with illnesses. This action further impacts health care disparities and overall health in the community and around the world. Thankfully, we are now able to have increased confidence in medicine because of the influx of African American health practitioners who tend to have your best interests in mind.

The time is now for people of colour to take advantage of the protection Covid vaccines provide. We are disproportionately impacted in contracting Covid as well as dying from it. Let this be a cry for change so we can improve outcomes for people of colour. All persons are asked to please, reach out to those you trust (to educate you) so you can protect yourself and your loved ones. The public health of the world needs this improvement and participation. The time is now to get vaccinated to save lives around the world! Special thanks are extended to Dr. Barney Graham, Dr. Kizzmekia Corbett of the US National Institutes of Health (NIH), a Black woman and team for their roles in the development of the vaccine for Covid 19.

Treisman, R. 2021. <https://www.npr.org/sections/coronavirus-live-updates/2021/04/12/986513859/studies-confirm-racial-ethnic-disparities-in-covid-19-h>

Online teaching during Covid – A teacher's reflection on the pros and cons

By Zena Lynch



Environmental Health students and teachers have had to adjust to online teaching and learning due very quickly to the Covid pandemic. This has been a challenging time for all engaged with education, and it is interesting to reflect on the lessons from the experience so far.

From a teaching perspective, the uncertainty during the summer of 2020 meant that we were having to prepare for many possible options. At this time there was still the possibility of delivering teaching face-face in a safe and risk assessed way, which required implementation of systems to ensure distancing, PPE (including masks and hand sanitisers for example) and so we were preparing for this at the same time as preparing for on-line delivery. The term 'bi-modal' became a byword for the teaching at this time, referring to a system where teaching can happen in both a physical space in the classroom and via virtual/distance learning.

However, due to the sudden upsurge in Covid cases as winter approached, it became clear that the balance was being tipped far more towards full online delivery. The move to online is often talked about blithely, as if a switch has been pulled and everything suddenly appears online. The reality was a restructure of virtual platforms to ensure the best outward facing system possible for accessible on-line learning. In our case, teachers were providing a huge amount of pre-recorded material to sit alongside 'live' electronically delivered lectures, seminars, and tutorials, as the courses progressed. In essence, we were doing the teaching work but at the same time creating the content for virtual frameworks which the delivery could sit in. This required very quick learning of new skills and a huge adaptation to new systems, which was positive in terms of skills building, but also stressful because of short time scales for implementation and workloads created.

Feedback from students has also shown pros and cons. One benefit highlighted was that the courses became more accessible for international students who were able to study remotely, thus avoiding travel and housing expenses. Some students also fed back that having the recorded materials available meant they were able to go back to information and pick up details that they may have missed in traditional classroom lectures. Students reported liking the flexibility of on-line in terms of being able to work around other home/family pressures. The main downsides raised include the difficulties creating the 'peer' support that you would naturally develop on campus, where for example students can share worries and talk to each other about specific areas they might be struggling with. The other main issue has been linked to lockdown creating isolation and loneliness.

In summary, this has been a huge learning curve for us all and I admire both students and teachers for their resilience and tenacity during this period. It is a testament to our ability as a learning community to adapt and adjust to new ways of learning and teaching.

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Study at UASVG

University of Applied Sciences Velika Gorica offers study programmes that are interesting to the young people from Europe, as well as from other parts of the world. From the very beginning the University of Applied Sciences has been developing mentorship approach based on the understanding and better relations between students and professors.

What are the advantages you have as a student at UASVG

High-quality acquisition of knowledge and skills in modern equipped premises, practical classes organised in cooperation with the industry, and a number of other possibilities for successful study are some of the advantages of the University of Applied Sciences Velika Gorica. The UASVG programmes have been adjusted to actual labour market needs.

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Professional title upon graduation: professional specialist engineer of Crisis management

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The course includes the core subjects of food safety management, health and safety at work, environmental protection, housing and public health. The areas of sustainability, quality of life, health inequalities, law and spatial planning are also integrated throughout the programme.

The BSc Environmental Health course is accredited by both the CIEH and IOSH. The course scores consistently high for student satisfaction (93% student satisfaction) with 95% of graduates in work or further study 15 months after graduation. To find out more visit www.ulster.ac.uk or contact Lindsay Shaw, Course Director, at email l.shaw@ulster.ac.uk

MSc – Global Strategy in Environmental Health and Sustainability
(Distance Learning)



This new programme has a strong international theme and focuses on the global role of environmental health in protecting communities and delivering a healthy, sustainable future. A perfect choice if you are passionate about the future health and well-being of our planet and its inhabitants.

The ethos of the course reflects **critical action 3** from the 3rd International Federation of Environmental Health (IFEH) Academic World Conference on Environmental Health, April 2019, Kampala, Uganda, specifically aimed at the role of academia in providing advanced education programmes and research to help facilitate the role of Environmental Health as “*a cornerstone to achieving the Sustainable Development Goals*”.

Delivered **entirely by distance learning, as part-time or full-time options**, it will enable you to study at a time and pace of your own choosing, engage with, and learn from, a diverse pool of peers.

The core principles of environmental health are embedded throughout the programme, aligned to the CIEH Professional Standards Framework, and directly linked to the attainment of UN Sustainability Goals. It will equip you with the critical thinking and problem-solving skills necessary to make a real impact in this field. Throughout each element we link the cross-cutting themes of, policy, strategy and intervention. You will be equally at home in a strategic or operational role, in a local or global setting.

Through an engaging on-line environment, you will cover topics **including food safety and security, environmental protection, sustainable technologies, emergency planning, resilience, housing and communities, international and human rights law**. Your research module will focus on the production of a journal article.

This MSc will be attractive for personal and professional development reasons. It will be equally attractive as a route to a rewarding career in the broad discipline of environmental health.

Contacts:

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Mr Robert Cameron, Course Director
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Flinders University



Flinders
UNIVERSITY

LEAD YOUR CAREER

STUDY MASTER OF ENVIRONMENTAL HEALTH

The Master of Environmental Health (MEH) at Flinders University aims to provide you with the professional qualifications to enter or enhance your career opportunities in the area of environmental health. This course provides you with advanced knowledge in the theory and application of environmental health and environmental health risk assessment.

The Master of Environmental Health is a 2-year course, available full-time or part-time.

It caters for national and international students through the teaching of globally relevant concepts and offers the opportunity to undertake risk assessment and applied research in an environmental health area within Flinders University or your existing workplace.

This course is fully accredited by Environmental Health Australia (EHA). Thus, graduates have the potential to gain employment anywhere in Australia or in overseas countries that recognise EHA approved qualifications.

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in Health Services & Support for full-time employment (postgraduate).*

* The Good Universities Guide 2020, public SA-founded universities only.

**FIND OUT MORE : [FLINDERS.EDU.AU/STUDY/
COURSES/POSTGRADUATE-ENVIRONMENTAL-
HEALTH](https://flinders.edu.au/study/courses/postgraduate-environmental-health)**

Western Sydney University

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UNIVERSITY



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With flexible online learning, and practical real world experience our students are equipped with the skills and knowledge needed to investigate Environmental Health issues such as water contamination, food safety, air quality, infectious disease, disaster and emergency management, project planning and scientific research.

Help make a positive contribution to the health of communities, give us a call on **1300 897 669** or visit westernsydney.edu.au/future/study/courses/undergraduate/bachelor-of-science.html



Ruaha Catholic University (RUCU).



Ruaha Catholic University (RUCU) is the successor of Ruaha University College (RUCO) which was established by the Tanzania Episcopal Conference (TEC) under its Trust Deed of the Registered Trustees of Ruaha University College through the generous support of well-wishers (friends of RUCU) within and outside the country.

This is one among the university offering Bachelor and diploma of Environmental health with information Technology (BEHSIT). It is found in Tanzania in Iringa region. The university is endowed with practical and much field work to socialise the environmental health aspects such as inspection of premises.

Contact Us Through

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Fax: +255 27 02563

Email: rucu@rucu.ac.tz

Website: <https://rucu.ac.tz>

Cardiff Metropolitan University



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Metropolitan
University

Prifysgol
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Caerdydd

Cardiff Metropolitan University has been delivering environmental health and public health qualifications for over 40 years. University employability statistics show that within six months of completing one of our undergraduate programmes 85% of our graduates have entered professionally relevant employment in both private and public sector roles.

We host the following programmes:

BSc (Hons) Environmental Health – with unique triple accreditation by the CIEH, Institution of Occupational Health, Safety and Wellbeing (IOSH) and Institute of Environmental Management and Assessment;

MSc Applied Public Health – developed in line with the Public Health Skills and Careers Framework for new entrants into the profession or those wishing to develop their careers;

MSc Occupational Health, Safety and Wellbeing – accredited by IOSH and available as a distance learning qualification whilst you are working full time;

MPhil/PhD/Professional Doctorate degrees – with three experienced supervisors focusing entirely on these areas.

To find out more visit www.cardiffmet.ac.uk or contact our enquiries team on (+44) 2920 416044, courses@cardiffmet.ac.uk

Faculty of Health Sciences, University of Ljubljana

Univerza v Ljubljani
Zdravstvena fakulteta



doc. dr. **Andrej Ovca**, dipl. san. inž.

*Oddelek za sanitarno inženirstvo / Department of
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Slovenian association of public and environmental health professionals has reviewed activities through which their members fulfil their mission in the field of pandemic prevention at various professional fields and in different institutions of their employment. Our colleagues from the field selflessly shared their experiences during the COVID-19 epidemic (which is currently in middle of second wave) in Slovenia. Through their responses four major areas of their engagement were identified.

First group (employed at National institute of Public Health) is in charge or is collaborating as a member of interdisciplinary groups which plan and recommend general and specific hygienic and technical measures for epidemic management on a national level.

Second group (Employed in hospitals, nursing homes, kindergartens, food companies, companies providing service in the field of health and safety at work, drinking water supply and waste management public companies) implement these measures in individual facilities and working processes.

Third group executes various tests and measurements for their clients.

Fourth group inspects compliance with measures or recommendations as a part of official control at municipal and national level.

According to the collected responses, effectiveness of Slovenian public and environmental health professionals is reflected in the extraordinary ability to cooperate with others, either within the profession either in working groups with members of other professions.

Those of us employed at the faculty (besides transferring the pedagogical process to the virtual environment) provided professional support to all colleagues from practice who turned to us. Since the declaration of the epidemic in Slovenia, we carefully monitor the development of events at home and abroad, so that we will be able to prepare our next generations of sanitary engineers for this kind of challenges.

Our Faculty (Faculty of Health Sciences, University of Ljubljana) gives each year awards for the best final research work of students at each of the research fields. In the field of sanitary engineering programme master's thesis entitled "Fast fashion – health and social aspects on consumption habits and attitudes toward second-hand clothing among adolescents" was awarded. (See photos)



University of Michigan

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Four online courses from the University of
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University of Copenhagen

Head of Studies Department of Public Health
Global Health Section
furu@sund.ku.dk www.pubhealth.ku.dk



Peter Furu Associate Professor,

“Experience from recent major disasters, changes in the humanitarian field, the changing nature of conflict, and climate change impact all have made it clear that a holistic approach to disasters and crisis management is needed to substantially reduce losses and deal with new challenges the current system seems ill equipped to respond to. A coherent and holistic approach to disaster risk management is not without challenges. Decisions have to be based on a politically, economically, socially, culturally, and environmentally sustainable foundation and rooted in sound development policies. Risk reduction needs to underpin and guide decisions in Preparedness, Response and Recovery planning and programmes. Professionals with an adequate knowledge base and the right skills are invaluable if these challenges are to be met.

In response to this demand, the University of Copenhagen is offering a one year master programme, based on the above philosophy – a Master of Disaster Management.

To apply, please visit www.mdma.ku.dk.

You can contact us on e-mail mdma@sund.ku.dk

BECOME A HUMANITARIAN AID PROFESSIONAL

Experience gained from recent major disasters, changes in the humanitarian field, the changing nature of conflict, and climate change impact have all made it clear that a holistic approach to disasters and crisis management is needed to substantially reduce losses and deal with new challenges to which the current system seems ill-equipped to respond.

The Master of Disaster Management (MDMa) is a research-based, cross-disciplinary postgraduate programme in the field of disaster risk management with the aim of fostering professionals who can formulate effective responses to complex practice and policy issues and thereby substantially reduce disaster losses.

The programme covers the three main processes of disaster risk management – reduction, response and recovery, and emphasizes that disaster risk reduction needs to underpin and guide decisions in preparedness, response and recovery planning.

The holistic approach of the Master of Disaster Management programme provides a solid basis for professional aid workers. The programme consists of lectures, team case assignments, field trips and individual assignments that combine practice-based competencies with the latest research and knowledge of disaster risk management.

The combination of science and hands-on learning allows a comprehensive understanding of disaster risk management processes. This enables a more strategic and tactical approach to be taken to ensure the best possible solutions for obtaining appropriate disaster response, recovery and risk reduction.

LEARNING OUTCOMES

The programme will provide you with a mix of practice-based competencies, in-depth scientific knowledge and effective negotiation skills.

As a graduate of this programme, you will be able to:

- understand the complexities of health, socio-economic, political, physical and environmental vulnerability in disasters
- identify scientific challenges, analyse and assess risk capacities and vulnerabilities and design appropriate evidence-based interventions
- communicate effectively with affected populations and other stakeholders in disaster management planning and operations
- develop and maintain interdisciplinary and cross-cultural collaboration in complex and unpredictable situations.

“I strongly welcome this effort of professionalising – in all meanings of the term – the work of managing and delivering humanitarian aid and disaster relief.”

- Poul Nielson, Former European Commissioner of Humanitarian Aid and Development.

FOUNDED IN GLOBAL PROCESSES

The Master of Disaster Management is a research-based postgraduate programme, designed in accordance with the Hyogo Framework for Action (2005–2015), the Sendai Framework (2015–2030) and the Sustainable Development Goals (2016–2030).

PARTICIPANTS

This programme is relevant for those from a wide variety of disciplinary backgrounds – risk managers, engineers, doctors, nurses, military officers, social scientists, logisticians

and journalists, to mention but a few. Enrolment requires a Bachelor degree and at least two years of work experience within the humanitarian field

STUDY FULL-TIME OR PART-TIME

The Master's programme can be completed as 1 year's full-time study or up to 3 years on a flexible study (part-time) arrangement. You can sign up for the full programme or individual courses.

CONTACT

For further information and enrolment, visit mdma.ku.dk or write to mdma@sund.ku.dk

UNIVERSITY OF COPENHAGEN
FACULTY OF HEALTH AND MEDICAL SCIENCES



MASTER OF DISASTER MANAGEMENT

A shared professional approach to humanitarian
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SHELTER AND SETTLEMENTS IN DISASTERS

Tartu and 4th IFEH World Academic Conference on Environmental Health

Tartu, the second biggest city in Estonia, is called a City of Good Thoughts (<https://tartu.ee/en>). Tartu is also known as a student city – this is why it is a place for good thoughts.



Although the thoughts are great, Tartu itself is rather small, but very cosy. Tartu has a population of around 100,000 and an area of 38.8 square kilometres, lying 185 kilometres south of Tallinn, the capital city of Estonia. One of the city's symbols is the Emajõgi River that flows for the length of 10 kilometres within the city limits and adds colour to the city.

In Tartu you can find different styles from medieval times to present-day modern architecture that are complemented with cosy cafes and unique restaurants and urban nature. The smart city project SmartEnCity has started (<http://tarktartu.ee/eng/>) with the goal to make the city environment smart and sustainable, to inspire people to make environmentally conscious decisions and to be easily replicable in other European cities as well. Tartu is also a cradle of Estonian culture – from here the national university originated and the first newspapers and cultural societies started their work. In the year 1869, the first Estonian national song festival took place in Tartu and the first professional theatre (Vanemuine) began its work here in 1870.

What could be better place for an academic conference to take place?

Tartu is also home for Tartu Health Care College which hosted the 4th IFEH World Academic Conference on Environmental Health from 4th to 8th May, 2021.

The topic of the conference was **"The real situation in environmental health – challenges and solutions"**.

Situation in Environmental Health is ever-changing, especially nowadays with many new challenges such as globalization, consumerism, climate and demographic change etc. The conference was a great success. Hundreds accessed the conference and attended the workshop.

More information about our college and the conference can be found:

Homepage: <https://www.nooruse.ee/ifeh>

Facebook: <https://www.facebook.com/events/1244735952555912/>

Newsfeeds and information sources open to EH members

(Please email the editor, any sources/links you have found that are not on this list).

Food Safety

www.foodnavigator-usa.com

www.foodonline.com

www.foodsafetynews.com

Development Aid

coleacp.org/

devex.com

Global perspectives

worldhealthupdates@who.int

Journals/ research

marketing@lancet.com

ukehrnet.wordpress.com

[International Journal of Environmental Health Research](#) – supported by IFEH

[Journal of Environmental Health](#) – published by NEHA

[Archives of Environmental & Occupational Health](#)

[Environmental Health Perspectives](#)

[Environmental Health](#)

[International Journal of Hygiene and Environmental Health](#)

[Reviews on Environmental Health](#)

[Environmental Health Insights](#)

[Journal of Environmental and Public Health](#)

[Journal of Environmental Health Science and Engineering](#)

National / Regional information

foodauthority.nsw.gov.au/

Academy of Higher Education

communication@advance-he.ac.uk

ENVIRONMENT-DISASTERS list

<https://www.jiscmail.ac.uk>

Health & Safety (UK)

<https://www.hse.gov.uk/index.htm>

Public Health England

<https://www.gov.uk/government/organisations/public-health-england>

Sphere Project

spherestandards.org

RESEARCH FOR HEALTH IN HUMANITARIAN CRISES

<https://www.elrha.org/>

Disaster Relief information sources

[UNDRR](#)

[WHO -Preparedness environmental health emergencies](#)

[Relief web](#)

[The Health in Humanitarian Crises Centre](#)

COVID

<https://www.worldometers.info/coronavirus/>

[COVID-19 Information Dashboard](#)

Good academic/professional links

[Key journal databases](#)

[CIEH](#)

[REHIS](#)

[NEHA](#)

[EHA](#)

[NZIEH](#)

[Greg Martin via LinkedIn](#)

Disaster Management/Risk Reduction courses around the world

[The UWI, Mona has an office of Disaster Risk Reduction.](#)

OpenWHO is WHO's interactive, web-based, knowledge-transfer platform offering on-line courses to improve the response to health emergencies. OpenWHO enables the Organization and its key partners to transfer life-saving knowledge to large numbers of frontline responders.
<https://openwho.org/>

[CDC Learning Connection](#)

CHECK OUT OUR FOOD SAFETY COURSES



LEVEL 1 FOOD SAFETY

Food safety is a constant concern for the public. It's important your employees understand their roles and responsibilities.

Duration:

2 – 3 hours

Assessment:

Multiple-choice questions

Certificated:

Highfield Completion Certificate



LEVEL 2 FOOD SAFETY

Regulations require that anyone involved in food handling must be appropriately trained in food safety.

Duration:

4 – 5 hours

Assessment:

Multiple-choice questions

Certificated:

Highfield Completion Certificate



LEVEL 3 FOOD SAFETY

Employees working in a supervisory role, including managers, supervisors and chefs.

Duration:

9 – 14 hours

Assessment:

Multiple-choice questions

Certificated:

Highfield Completion Certificate



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